Leveling the Playing Field 2: Creating a Statewide Resource Sharing Service

Final Report of the Action Team for Library Advancement Statewide

Prepared for the Library of Michigan
by Randy Dykhuis & the ATLAS Committees
August 30, 2002

Table of Contents

Executive Summary

Michigan residents need access to information resources and materials in Michigan's libraries anytime, anywhere. The Library of Michigan (LM) has promoted statewide services for libraries for more than ten years. With the formation of the Michigan Electronic Library (MEL) in 1995 and AccessMichigan in 1997, LM put forth a vision[1] for providing Michigan residents with greater access to information resources no matter where they might be found. The need for a statewide resource sharing system was reinforced during the Our Preferred Future Conference for Libraries in September 1999. At that conference, librarians from all types of libraries strongly supported the idea that Michigan needed a statewide catalog of library holdings. The catalog would be integrated with a mechanism for users to request and receive the materials they needed from any participating library in the state.

After the conference, Tim Richards, library director at University of Michigan-Dearborn, and Randy Dykhuis, Executive Director of the Michigan Library Consortium (MLC), convened a committee to work on developing a new statewide resource sharing service. The committee met informally for several months and eventually become the Action Team for Library Advancement Statewide (ATLAS).

After becoming State Librarian in April 2000, Christie Brandau demonstrated her commitment to the project by agreeing to fund a consultant to survey the state and work with ATLAS on developing its plans. RMG Consultants Inc was hired and they delivered their report in September 2001.

MLC began consulting with LM on development of an implementation plan immediately following receipt of the report from RMG. On September 28, 2001, LM and MLC convened a meeting for librarians who were interested in working on the project. More than 80 librarians from all types and sizes of libraries came to the meeting and joined one of eight ATLAS subcommittees.

For the next seven months, each committee worked intensely to develop the components of the resource sharing service. By the end of April 2002, the committees had submitted reports of their investigations with recommendations for proceeding.

The key components of the service include a portal for easy searching, interlibrary loan software that will facilitate requesting and administration of requests, a delivery service so that users receive their materials quickly, and access to digital collections from around the state. It will be important to establish a comprehensive training program and promotional strategy, both of which target activities for librarians and other users.

The service we envision is one that builds on the Michigan eLibrary (MeL) and its statewide authentication service. It will allow users to find what they want, when they want it, and to request it without intervention from a librarian. The service will be available at any time, from any location, through the Web.

The portal will be the key to unlocking the wealth of materials available digitally and in physical format in libraries. Users will authenticate themselves as Michigan residents so that they can use the databases licensed on their behalf by LM. The portal will give access to a union catalog of library materials. Users who wish to borrow items from a participating library must identify themselves as a library patron in good standing.

Once the authentication process is completed, the interlibrary loan software will facilitate the borrowing process by notifying a library that owns the desired material. Staff at the library receiving the request will

[1] The vision is explained in *Leveling the Playing Field: A Proposal to Enhance the Electronic Delivery of Information to All Michigan Residents*, which was prepared for the W. K. Kellogg Foundation in 1997. The grant request was not funded. The text of the document can be found online at http://www.accessmichigan.org/kellogg_grant_proposal.pdf.

retrieve the material from the shelf and ready it for delivery. The material will be sent to the library identified by the requestor in the next delivery shipment.

The service will be built on a circulation-system model, rather than a traditional interlibrary loan model. Based on this model will make the service more responsive to users and more effective for librarians. By using a circulation-system model, the service will be able to check shelf-status of library materials, provide that information to users, and allow them to make a decision about whether to seek the materials themselves from a nearby location or to request the materials through the statewide resource sharing service. Newly approved standards will allow the use of patron files built by local libraries' circulation systems for authorization and authentication in the statewide service.

Not all library materials can be loaned. Some materials are rare and extremely valuable. Others may be unique and irreplaceable. Libraries across Michigan harbor a wealth of such materials. Through a coordinated digitization program, these materials can be available to a far larger audience. The digitization program ought to focus on collection development, identifying best practices and establishing standards, and providing reliable access.

Training for librarians and library users will be a key component in the success of the project. By establishing an aggressive "Train the Trainer" program, LM can ensure that librarians receive the training they need to use the system and that they can train their patrons. We expect the system to be easy-to-use so that most library users will not require training, but in some cases, librarians will want to offer classes and training sessions. The training program ought to give them the skills and materials they need to offer such training classes.

No endeavor of this magnitude can be done without full-time staff dedicated to making the service a reality. Administrative, technical, and training staff will be needed soon after submission of this report so that implementation can proceed.

The timeline found on page 34 presents an aggressive, yet achievable implementation schedule.

The major recommendations from each of the committees are listed on pages 7 to 9. Details of criteria and functionality for the service and each of its components are contained in the body of the report.

Much has been done to bring the statewide resource sharing service to fruition. Much planning, much research, much hard work has gone into the process thus far. Much remains to be done. We believe the Michigan library community is ready, willing, and able to help create the service. Indeed, they are waiting for the service. With this report, we believe we have a solid blueprint upon which to build.

Guiding Principles

ATLAS and the subcommittees have been guided by six core principles since the project's inception. We believe that continued adherence to these principles are key to the project's success.

1. Patron-oriented
   First and most important, Michigan residents will be able to locate, request and pick up the library materials and electronic documents they need using the statewide resource sharing service. Library users will not need to have library staff request materials for them. They will be able to make their own requests. The system will be designed for its ease of use and accessibility.

2. Continuing to level the playing field
   In the early and mid-1990s, LM funded several projects that had impacts on libraries statewide. These include the Internet Training Centers and MEL. In early 1997, the Library of Michigan made a bold

decision to allocate 60% of federal library funds for statewide projects. The timing was right, libraries were ready and the federal regulations governing the distribution of these funds had changed. AccessMichigan was born and MEL was given expanded resources. Later, AccessMichigan and MEL were combined to form the Michigan eLibrary (MeL).

These two projects gave every library in Michigan a core set of electronic resources at no cost to the local library. This was only the beginning of a push to address unequal access to electronic resources in libraries across the state. ATLAS continues this push to equalize access to information resources in Michigan's libraries.

3. Multitype
   Historically, the Library of Michigan has supported multitype library cooperation. ATLAS participants have come from all sizes and types of libraries: school, public, special and academic. The resource sharing service will be stronger because different types of libraries will contribute a diverse set of materials, which will serve Michigan residents better and more completely. No single type of library could do the job as well.

4. Statewide reach, local and regional touch
   We recognize the existence of strong local and regional resource sharing protocols and practices in some parts of the state, often supported by regional organizations. Such organizations are important to the development of our statewide resource sharing system. Any statewide service must build on these local and regional relationships and recognize that the services they offer Michigan residents include reciprocal borrowing. Our statewide resource sharing system must support these programs.

   We also recognize that every local library, whether it is academic, public, or school, must make its own decision about whether to participate. No central authority exists to mandate participation. The project planners recognize that incentives and clear benefits must be built into the project and that it must have as much flexibility as possible so that localities can customize the system to meet local needs.

   Michigan has several existing regional integrated library systems, ranging from very large systems such as those found in Lakeland Library Cooperative, the Upper Peninsula Region of Library Cooperation, and The Library Network to smaller systems such as the Flint Area Library Cooperative Online Network and the Valley Library Consortium. We see this as a strength upon which to build. Regardless of the form the statewide system takes, these regional systems will form important building blocks and could be a means by which non-automated or inadequately automated libraries could participate in a statewide system.

5. Builds on current reality
   According to a recent survey done by RMG Associates, there are many different automated systems in use in Michigan. The challenge of the project is to allow participation, no matter what automated system is used in the local libraries. The system must also allow for different levels of participation based on the capabilities of these local automated systems, ranging from search only access to full patron initiated interlibrary loan.

   InMich and MiLE are two LSTA funded pilot projects whose experiences will provide valuable input for the statewide system. Both projects have worked through training issues, deployment issues and vendor performance issues. These experiences will be a useful guide for planning and implementing the statewide system.

6. The Perfect is the enemy of the Good
   The statewide resource sharing project will require compromise on the part of the state and participants. The perfect solution does not yet exist, and we must all recognize this is an iterative process. We will, however, create the best service we can with the available hardware, software and financing. The system will grow and improve as we learn more about usage, interlibrary loan patterns and the needs of its participants and as we work together for the good of our patrons.

Needs Assessment

The result of the committees' work is a resource sharing service that meets the information needs of Michigan's residents by identifying and sharing the wealth of resources in Michigan's libraries. It is a system that enables users to find and get the information they need in Michigan's libraries quickly and reliably. To help design the resource sharing service, we identified three sets of users and the needs each group has.

The needs of library users we have identified include:

1. fast and efficient identification and requesting of library holdings anytime using the Web.
2. immediate online access to electronic materials.
3. ability to personalize access and check on the status of their records and accounts, while maintaining the privacy of all users.
4. reliable service that is available statewide, wherever they are.
5. ability to identify and get items from any library in the state easily and quickly.
6. an easy way to use the Web for evaluating the content and usefulness of materials before requesting them.
7. a statewide system with regional access to collection and patron information in support of reciprocal borrowing.
8. ability to use their library cards anywhere so they can go to nearby libraries and check books out themselves.

The needs of libraries we have identified include:

1. ability to expand their collections by sharing the collections of all types of libraries in the state, because no library can buy everything their users need.
2. a cost effective way to provide automated interlibrary lending services, based on patron initiated requesting from reliable databases.
3. an efficient and inexpensive delivery system to get materials to users.
4. a robust resource sharing system that leverages the investments they have already made in information systems.
5. a way to share the responsibility for resource sharing across all participating libraries with incentives for every participating library.

6. ways to help all libraries in the state participate because unique resources are held in every library, no matter what type or size.

7. a statewide system that has a "local touch" and enhances the image of every library that participates.

8. links to national resource sharing systems for materials not available in Michigan.

The needs of key stakeholders we have identified include:

1. maximize the investment already made in the extensive resources and information systems in Michigan's libraries.

2. provide outcome based evaluation and accountability for the resource sharing system.

3. reduce unnecessary duplication of library resources and services by sharing more efficiently.

4. take advantage of the emerging Michigan resident identification systems to provide access to statewide library information systems and databases.

5. take advantage of the quickly developing statewide high-speed Internet infrastructure to deliver information to Michigan's residents.

6. enable all residents, especially the underserved populations, such as rural and urban, multicultural and disabled, to have improved access to information in Michigan's libraries.

7. provide a service that will be a source of pride in Michigan's libraries, with their extensive and unique library resources and reliable and responsive delivery systems.

To meet the needs of all stakeholders, Michigan needs to develop an effective statewide resource sharing service.

Recommendations

The following recommendations are the result of five months of extensive investigation by the eight ATLAS subcommittees. These recommendations will make Michigan a national leader in the provision of library services to residents statewide, regardless of geography or physical location.

1. Adopt an official name for the new statewide resource sharing service. One name that has been suggested is the Michigan eLibrary (MeL) Lending Library.

2. Build the resource sharing service with existing and emerging standards. These include Z39.50, NISO Circulation Interchange Protocol (NCIP), and ISO 10160/10161 for ILL.

3. Build the service using a circulation-based model rather than a traditional ILL model. A circulation-based module allows users to determine shelf-status of materials, allows the system to route requests more effectively, and builds the user authentication process on local patron files.

4. Create a program for lending reimbursement. To ensure a successful service, it is important to develop a mechanism for reimbursing libraries that participate in the statewide resource sharing service.

5. As much as possible, minimize the number of participating integrated library systems, while working to maximize the number of libraries that participate in the service. To achieve this goal, utilize existing regional integrated library systems to create the statewide union catalog and to implement the resource sharing software. Many of these are ready now to join a statewide resource sharing service and could be in Phase 1 implementation. Existing stand-alone systems that are ready to join the service should also be encouraged to participate.

6. Create a multi-tier service so that all libraries, regardless of automation capability, can participate at some level. The levels may consist of a search-only mode for those libraries that have only the ability to search the union catalog, a contribution tier for those libraries that wish to contribute their holdings but are not ready to participate in the lending and borrowing service, and a full participation tier that includes patron-initiated interlibrary loan.

7. Create a migration path for Michigan libraries. Libraries that are not yet ready for full-participation need to plan for the software and hardware necessary for full participation. These include an ILS (OPAC and circulation module) with Z39.50 client and server software, NCIP, and ISO 10160/10161.

8. Build a database of library readiness. This information would be used to make decisions about the status of individual libraries and their ability to participate in the resource sharing service. The library readiness database ought to be Web accessible. Libraries could update the database as they make changes to their local automated systems.

9. Focus initial development on returnable materials, such as books, compact discs, videocassettes, etc. Add support for non-returnables, such as photocopies, after the service is established.

10. Engage vendors in an active dialog about how to build the best statewide service by issuing a Request for Information that outlines specific service requirements and naming the Phase 1 participants. The specific functional requirements ought to follow the criteria specified on pages 9-11.

11. Work with various library service agencies and vendors to identify interim solutions for participation by non-automated libraries.

12. The portal and resource sharing software share many similar functional requirements. Several vendors offer software capable of providing both components. While it is conceivable that separate vendors could be chosen for each component, the functionality of these two components is tightly intertwined and ought to be considered as a single whole. Consequently, we recommend bidding both of these products together, using a process as outlined in number 7 above.

13. Access to the statewide resource sharing service must be available from a library's integrated library system or Web site, as well as from the statewide portal. No library will be forced to use the portal as the sole entry point to the statewide service.

14. A robust authentication process must allow for multiple levels of authorization. Build on the Michigan driver's license and state identification authentication and the authentication systems that utilize local patron information files currently in use by some libraries.

15. Build on existing regional delivery systems to create a comprehensive statewide physical delivery service for library materials.

16. Define a digitization program for the state. By building on grant requests to the Institute for Museums and Library Services, submitted in spring 2002 and detailed on page 30, the state has an opportunity to develop the emerging digital collection of library materials.

17. Create a program that offers training in all regions of the state at times and places that are convenient for library staff to attend. The program ought to be coordinated by a single agency, which would have ultimate responsibility for quality control.

18. Promotional activities need to be pre-planned and a coordinated marketing plan developed. We recommend that LM contract with an outside marketing firm to help with planning and execution.

19. Full-time staff will be required for the project. At a minimum, three positions ought to be part of the initial plan. Upon acceptance of this report, appoint or hire a person or agency to continue planning and begin coordinating the early implementation of the resource sharing service. Upon agreement with one or more vendors for installation of portal and resource sharing software, make plans to hire one technical advisor and one training coordinator.

Criteria for Portal and Resource Sharing Software

The MeL portal will allow every Michigan resident to have easy-to-use electronic access to the state's libraries, free Internet resources, and commercially licensed databases and services. The portal will provide a Web-based access point to the diverse resources that are components of the Michigan eLibrary. Potential resources include: a collection of Internet sites, licensed databases, library catalogs, and digitized local resources. Users will be able to search these resources individually or collectively and will be able to retrieve or request materials. The portal will include a method to authenticate and authorize this access. Users will be able to move seamlessly among various portal modules.

The resource sharing software will allow library patrons in good standing at their local libraries to place requests for materials found in any participating library. Appendix 2 contains the interlibrary loan policies that participating libraries will use.

Functionality criteria

We believe the criteria listed below are minimum standards upon which to build the resource sharing service. We recommend that these criteria form the basis for discussions with vendors and for any procurement documents that may be developed.

1.0 Searching
- 1.1 Able to search quickly across different data sources and formats including: Web resources, Z39.50 data sources, full text subscription databases, SQL databases, and proprietary text databases.
- 1.2 Return results in uniform format specified by the user.
- 1.3 Rank and sort results as designed by the user.
- 1.4 Merge, separate, group and/or dedupe results as designed by the user.
- 1.5 All labeling language customizable by the user.
- 1.6 User able to modify search and sort results by criteria selected by the user (e.g. language, date of publication, material type, etc.)
- 1.7 Able to narrow (scope) searching by various parameters including type of resource, or by region or group in case of library catalog or by library type, or by combinations of different resources. Scoping capability may be pre-selected within the system and/or defined by users at the point of search.
- 1.8 Able to search selected targets based on specified grouping of resources selected by user (e.g. children resources adult, researcher, etc.)
- 1.9 Able to design search sequences such as local, then regional, then state in the library catalog
- 1.10 Able to translate & unify results messages from different systems that mean the same thing (e.g. "on shelf" = "checked in" = "available").
- 1.11 Interface needs to be compliant with standard screen readers
- 1.12 Vendor should supply help screens that can be modified to suit local needs.

2.0 Fast and efficient identification of resources in Michigan's libraries
- 2.1 Able to connect through the home library catalog and carry the search forward to this service.
- 2.2 Able to connect directly to this service over the Internet.
- 2.3 Able to search holdings of all participating libraries and obtain a de-duped display of the results within a reasonable response time.

2.4 Able to scope searches easily by groups of libraries, e.g., existing consortia, geographic area or library type.

2.5 Able to find out the availability status of materials in Michigan's libraries.

3.0 An inclusive statewide online catalog with print and media as well as serials holdings for all participating libraries

3.1 Able to include catalog enrichment services, such as tables of contents, book reviews and cover art.

3.2 Able to link to electronic content and services.

4.0 Easy to use authentication and authorization system for users

4.1 Able to comply with the Michigan Library Privacy Act.

4.2 Three levels of authorization:

4.2.1 Guest

4.2.2 Michigan resident

4.2.3 Michigan library patron in good standing

4.3 Encryption of data that needs to be transmitted securely over the Internet.

4.4 Able to authenticate through links to local system patron databases.

4.5 Able to authenticate for:

4.5.1 patron initiated requesting of books

4.5.2 patron initiated requesting of articles

4.5.3 use of a "My Library" service

4.5.4 access to licensed databases provided statewide by LM for all Michigan residents

4.5.5 access to locally licensed databases

4.5.6 access to restricted digitized collections.

4.6 Able to provide guest access for:

4.6.1 searching a statewide catalog of library resources

4.6.2 the MeL database of selected Websites

4.6.3 unrestricted digitized collections

4.7 Able to authenticate and be authorized at the highest level when logging on

4.8 Able to switch between levels of authorization at point of need.

5.0 Patron initiated requesting capabilities, both mediated and unmediated, for authorized individuals to easily request materials for delivery to their home libraries and check the status of their requests.

6.0 Ability to fill requests with materials available locally or regionally before going statewide or national, with automatic forwarding at all levels.

7.0 Ability for patrons to specify a point of pick-up other than their home libraries, including direct delivery.

8.0 Management of borrowing and lending for returnables among all types of libraries, with an integrated approach to library processes (input once, use many) and load-leveling capabilities

9.0 Management of borrowing and lending for non-returnables (as above), including copyright tracking

10.0 Ability to accommodate statewide ILL policies for resource sharing

11.0 System administration capabilities for customizing the system and managing its parameters at multiple levels, e.g., individual library, consortium and state levels

12.0 Statistical, usage and management report capability.

13.0 Interoperability with systems that are ISO 10160/161 compliant, including national systems such as OCLC, DOCLINE, and RLIN

14.0 Customization
- 14.1 Optional added feature would be the ability for users to create personalized versions of portal contents and display.
- 14.2 Option for branding or co-branding to give a local library flavor to the site as well as to be able to incorporate access to resources unique to local library. The user should be able to access both local and state resources from one site.

15.0 Other Optional extras
- 15.1 Ability to provide enhancements to search results such as related topics or hot links to author name for example.
- 15.2 Specify options for serving non-English speaking users

Technical criteria

1.0 Standards and protocol based, including Z39.50 Bath Profile, ISO ILL 10160/161 IPIG Profile, NCIP (forerunners SIP, ESIP or SIP2), MARC21 character set, USMARC Holdings Format and encryption protocols.

2.0 Scalability to include all Michigan's libraries and all Michigan's residents and still be responsive and reliable.

3.0 Ability to interface with the physical delivery system(s) of choice for Michigan, as well as accommodate electronic delivery

4.0 Ability to interface with, or serve as a portal and global search engine for, other MeL resources and services, including licensed databases, digitized collections of unique resources in the state, and local and community information.

5.0 Web browser access to all functions for both users and library staff, with usability by (or adaptability to) people with disabilities.

Administrative criteria

1.0 Builds on the investments in integrated library systems, resource sharing systems and telecommunications networks already made by Michigan's libraries, cooperatives and consortia, yet provides for participation of libraries not yet fully automated.

2.0 Effective documentation and training methods for a statewide project

3.0 Efficiency of implementation and operation for the individual libraries, cooperatives and consortia as well as the state, including staff resources needed to install and maintain the system

4.0 Short and long term development planned by the vendor to meet these criteria

5.0 Administrative module of portal software should be Web based, allow for customization of labeling of displays and for easy addition of new resources both in display and in adding authentication information. Vendors need to specify the types of changes that can be accomplished at the administrative level without intervention by vendor. Levels of administrative access needed include: state, local, patron

6.0 Able to generate usage statistics including components used, user origin, use of search terms (Note: for RFP may want to add other statistical criteria)

Review of Current Vendor Systems

We reviewed several vendors' systems to learn about the current state-of-the-art in resource sharing systems. Several vendors were invited to demonstrate their products as examples of the types of systems available for Michigan libraries.

We focused on resource sharing systems for books (returnables). We also looked at capabilities for delivery of articles (non-returnables) and for access to electronic resources, especially those provided by MeL.

Below we detail our findings about current systems and their ability to meet our criteria. System capabilities are continuously developing, so this review reflects our understanding as of early 2002.

Functionality criteria

1.0 Fast and efficient identification of available resources in Michigan's libraries…

There are three basic tasks to be done to meet this criterion. First, users need to search a database to identify the items they want. Second, they need to locate those items in Michigan's libraries. And third, they need to find out if the items are available for them to request.

Current options to meet this criterion include the following:

- Build a physical union catalog from the online catalogs of all Michigan libraries; use Z39.50 or proprietary links with the online catalogs to harvest updates; other options include FTP from local catalog or from OCLC
- Build a virtual union catalog by linking libraries' online catalogs using Z39.50 protocol; organize the catalog by geographic regions or other appropriate groups to be manageable.
- Build a physical union index to the online catalogs of all Michigan libraries; use Z39.50 links to harvest updates and to retrieve local holding displays from the index.
- Create a Michigan database through OCLC's Group Catalog product; use Z39.50 links to harvest updates and to retrieve local holding information. Note: OCLC is developing this capability and expects to have this option available in 2003.

Based on initial and limited review of systems from several vendors, we offer the table below. The conclusions are not meant to be comprehensive nor are they based on a thorough evaluation of each option. There are a number of variables that affect the performance of each of these options. Among them are network configuration and architecture, server size, and disk storage. At this point, we are not prepared to recommend that any one option is inherently better than another. We encourage benchmarks to be established and measurements made before a vendor is selected to provide the resource sharing software.

Criteria	Physical Catalog	Virtual Catalog	Physical Index	OCLC Group Catalog
Fast and efficient	Searching is generally fast and efficient	Searching can be slower; de-duping generally takes additional time	Didn't observe; expect to be fast searching but slower display	Didn't observe; expect to be like GAC service
Carry search forward from local OPAC	Yes—if same integrated library system vendor; otherwise, depends on local integrated library system	Depends on local integrated library system to do Z39.50 link or http script	Depends on local integrated library system to do Z39.50 link or http script	Set up WorldCat subset as a Z39.50 target from the local catalog
Internet connectivity	Yes; with guest access	Yes; with guest access	Yes; with guest access	Yes; but with no guest access
Search all with de-duped result in reasonable time	Yes; de-duplication done when records loaded	Search and de-dup by groups of libraries and batches of records	Probably; de-duped result built when displaying using a table	Yes; de-duped result created when records loaded
Scoping	Yes	Yes	Yes	Yes
Status of materials	Yes; through Z39.50, NCIP and proprietary interfaces	Yes; through Z39.50, NCIP and proprietary interfaces	Yes; through Z39.50, NCIP and proprietary interfaces	Yes; through Z39.50 and http links to local catalogs

2.0 Inclusive statewide online catalog with print and media as well as serials holdings for all participating libraries.

For the first implementation phase, we are choosing to focus on book collections. All the options except the virtual union catalog depend on the continued contribution or harvesting of holdings information from local or shared online catalogs for update. More study needs to be done on the capabilities of each of the options for the collection and display of statewide serials holdings. The OCLC option includes plans for links to union listing data.

Catalog enrichment services were seen as an important aid to users to help them evaluate and decide which items to request. Each option will vary in its implementation of these services.

Links to electronic content and services should be provided for the MeL databases available to all residents. Vendors are currently developing new links through OpenURL systems; however, they are in the "early adopters" stage for this capability. OpenURL systems could also provide links to catalog enrichment services.

3.0 Easy to use authentication and authorization system for users …

All systems we reviewed had the ability to authenticate users to make requests online. Current solutions included:

- Create a statewide database of all library users as an interim solution until NCIP enables communication with local system patron files
- Link to local system patron files using SIP, ESIP or proprietary interfaces until NCIP is enabled
- Authenticate using IP address or home library URL recognition; however, this does not authorize a user based on eligibility and has limitations for users accessing remotely.

Challenges that the criteria posed for the vendors included:

- Protecting patron privacy—was more difficult in the statewide patron database.
- Three levels of authorization—the three levels identified were 1) guest for searching, 2) Michigan resident for licensed databases, and 3) Michigan library patron in good standing for requesting materials. All vendor systems provided a guest searching option (except OCLC). Creating a level for Michigan residents would be a challenge for all to incorporate. All were working to test and implement NCIP as the best solution for authorizing Michigan library patrons.
- Encryption—vendors were using, or beginning to use, Secure Socket Layer (SSL) with HTML.
- Links to local systems--NCIP could be at least two years away from broad adoption in the industry, so workarounds are needed now; a problem is how to accommodate patrons of libraries that are not automated.
- Authentication for resource sharing, restricted databases and "My Library" services—all vendors seemed to be developing in the direction of authenticating for use of a portal, not just for resource sharing components. This depended on the portal capabilities.
- Authenticate once when logging on—vendors authenticate at different points in the process.
- Switch between levels of authorization—requires being able to switch without having to login again and redo the search, e.g., from guest to patron authorized to make a request. One system enabled login either at the beginning or at the time of the request.

4.0 Patron initiated requesting…for authorized individuals to request materials easily and check the status…

Most of the resource sharing systems we reviewed had this capability, with varying features and ease of use for patrons. The main difference we observed was whether the system was designed initially from the user's perspective or from the library staff's perspective. We found that those designed as interlibrary loan systems for staff were not as friendly for users. In general, few vendors have fully developed resource-delivery management systems.

5.0 Ability to fill and forward… locally or regionally before going statewide.

Most systems had this capability. Libraries have to create groups of potential lenders and prioritize them.

6.0 Direct consortial borrowing.

This is a future capability that vendors are incorporating with NCIP. Vendors that are in the lead with NCIP implementation will have this the soonest.

7.0 Management of borrowing and lending for returnables…with load-leveling.

All systems we saw in operation handled returnables, i.e., books and other media that could be loaned but had to be returned. Most had load-leveling across potential lenders.

8.0 Management of borrowing and lending for non-returnables, including copyright tracking.
Fewer of the systems we saw could handle non-returnables. At least one could support electronic delivery to the desktop. This area was more in development along with the ability to search index/abstract databases for article citations, link to the catalog for holdings in paper, and provide other fulfillment options.

9.0 Ability to accommodate Michigan's ILL policies for resource sharing.
Each system had a way to profile libraries to accommodate ILL policies and customize them for local libraries' needs. Some systems were considerably more sophisticated in their profiling options and were consequently more complex to set up. A statewide project will likely need the sophisticated options.

10.0 System administration capabilities…for multiple levels…
Some systems provided ILL brokering capabilities for consortia that handled ILL for their members. As above, those systems that were more sophisticated were more complex to set up; however, a statewide project needs that sophistication.

11.0 Statistical, usage and management report capability.
All had some statistics and management reports built in. Some could have reports created using third party report writing software for relational databases. While requiring more local expertise, the reports can be customized for use by Michigan's libraries.

12.0 Interoperability with systems that are ISO 10160/61 compliant…OCLC, DOCLINE, and RLIN.
This is another area where standards are still developing. Systems we saw could interface with OCLC and even forward unfillable requests to OCLC, for example, as the "lender of last resort." Links with DOCLINE are taking longer to develop.

Technical criteria

1.0 Standards and protocol based…
Most vendors' systems use Z39.50 version 3; however, they continue to implement the Bath Profile. Both the ISO ILL and NCIP protocols are in development and could take two years or more to be in widespread use. The MARC21 character set is well established. Encryption protocols are being implemented. More information is needed about the USMARC Holdings Format and the status of its implementation.

The use of proprietary interfaces may be a necessary interim solution while standards are developing, with the preferred solution to use standards-based communication among diverse systems.

2.0 Scalability to include all Michigan's libraries and all Michigan's residents and still be responsive and reliable.
This is the ultimate challenge to all the vendors' systems. There are potentially more than 1,500 libraries in Michigan that serve over 9.9 million residents, of which a large percentage are likely to be registered library users. An estimated 70% of these libraries have online catalogs, either standalone or shared, that use systems from at least fifteen different integrated library system vendors.

Challenges for each option include:

- Patron authentication—how to handle links to hundreds of online system patron databases, pre- and post-NCIP;
- Z39.50 or proprietary links to hundreds of online catalogs;

- Profiling 1,500 libraries for borrowing and lending with regional lending and load leveling;
- Ability to handle thousands of requests per week;
- Ability to handle the display of serials holdings for the whole state.

Specific challenges for the catalog options include:

- Physical union catalog—building this database of more than 25 million records could take several years. Matching and de-duping holdings from a variety of cataloging records into a single kept record would be complex. Alternatively, separate records could be kept in the union catalog, which would greatly increase its size and then require de-duping for display. Keeping the catalog up-to-date would need to be done automatically by harvesting updates from local catalogs. If proprietary links were needed to local catalogs, rather than using Z39.50, the links might need to be updated and synchronized with each release of the local system software.
- Virtual union catalog—creating this database with Z39.50 links to all the catalogs in the state would probably have to be done by geographic area in order to be manageable. De-duping within a group of catalogs is currently feasible for some systems; however, de-duping large result sets across a variety of cataloging records is neither simple nor fast. De-duping across groups of catalogs is yet another challenge. Search results vary in a virtual union catalog, depending on the variety of indexes involved and the availability of the catalogs when searching.
- Physical union index—creating this union index would be done by harvesting bibliographic records from all the catalogs in the state and storing links to those records in the union index. The records matching a search would then be retrieved and de-duped for display from the local catalogs using Z39.50 and matching algorithms to handle the large result sets. A method to keep the index and record links up-to-date would be needed, e.g., harvesting automatically using Z39.50 protocols.
- OCLC Group Catalog—all libraries in the state have not been able to keep their holdings up-to-date in WorldCat. A major effort would be needed to capture the missing holdings and update those that are out-of-date. Some Michigan libraries have not participated in OCLC cataloging and would need their holdings added. Even so, this might be the quickest way to see the most holdings for the state's libraries. Currently, there are 27,437,846 holdings for Michigan's libraries in WorldCat. This option would greatly benefit from a way to automatically harvest up-dates from the state's online catalogs, e.g., through Z39.50.

3.0 Ability to interface with physical delivery systems…
None of the systems we saw had this capability; however, we believe such an interface would be highly desirable to better manage and track deliveries.

4.0 Ability to interface with…other MeL resources…
Resource sharing systems seem to be developing portal and global search capabilities. Some already have early versions.

5.0 Web browser access…for both users and library staff.
Most systems were Web browser based for both users and library staff.

Administrative criteria

1.0 Builds on investments…made by Michigan's libraries…yet provides for participation of libraries not yet fully automated
The key challenges to all vendors are:

- Interoperability to communicate with all the integrated library system systems in Michigan's libraries through Z39.50 and NCIP
- Accommodate users whose home libraries have not yet automated
- Include the holdings and enable lending for libraries that have not yet automated.

2.0 Effective documentation and training…for a statewide project
This is something that would need to be evaluated during a vendor selection process. The ATLAS Training Committee is addressing the training needs.

3.0 Efficiency of implementation and operation…including staff resources to install and maintain the system
This criterion would also need to be evaluated during a vendor selection process and would benefit from consultation with other statewide projects about the human resources actually required. Some vendors would host the system, i.e., serve as an application service provider (ASP).

4.0 Short and long term development…
When a vendor selection process is done, another review ought to be done of the state-of-the-art and the development areas needed by each vendor to help Michigan's libraries achieve their vision of resource sharing.

Key development areas we identified include:

- Testing and implementation of NCIP and ISO ILL 10160/161.
- Requesting and delivering magazines and journal articles, i.e., non-returnables.
- Portal, global (or cross domain) searching and display capabilities.
- De-duping large result sets in virtual union catalogs.
- OpenURL capabilities.
- Enrichment data.

Local Integrated Library System Requirements

Michigan libraries currently have a wide range of automation and resource sharing systems of various generations, including:

- Single library integrated library system
- Shared physical union catalog with no central circulation system
- Shared physical union catalog/integrated library system with a central circulation system
- Shared physical union catalog/integrated library system with limited participation in central circulation system
- InMICH (physical union catalog with holdings and status updated from local integrated library system)
- MiLE (linked systems with holdings and status retrieved from local integrated library system via Z39.50)
- No online catalog

These systems are described in greater detail in Appendix 3.

Potential vendors of the statewide system are required to:

- describe how and to what extent libraries with varying local capabilities may participate

- propose solutions that allow users to request as well as search regardless of the local library's system capabilities
- enable all participants to lend as well as borrow, requiring a mechanism to make local holdings available

The level of participation possible in the statewide resource sharing service will be determined by the capabilities of local automated systems.

Although libraries lacking full functionality in their automated systems will not be able to participate as fully as those with newer or more sophisticated systems, we expect to deploy a system that allows participation by libraries at all stages and levels of automation.

Low-level or minimum participation may be defined as search-only access. A library may choose to provide access to the union catalog for its staff and users but may not have the functionality necessary to provide complete resource sharing.

Minimum participation requires that a library have Internet access. Dial-up access may work in the short-term but will not be adequate for long-term access, especially as more and more digital images become available.

An intermediate participation level may be defined as searching plus holdings availability. A library may choose to make its holdings known through the union catalog, either via a link or loading into a shared catalog, but choose not to fully participate in the resource sharing service.

Full participation requires the following capabilities:

1.0 Dedicated Internet connection with access to the Web

2.0 An integrated library system with catalog and circulation modules and patron database

3.0 MARC bibliographic records, preferably including USMARC Holdings Format records
- 3.1 Z39.50 server and client, installed and available. Supports discovery between systems
- 3.2 Bath profile compliant, see http://www.nlc-bnc.ca/bath/bp-current.htm

4.0 Ask vendor which of the 3 Bath profile levels (Conformance Levels 0, 1, or 2) it plans to support and its timeline for compliance

5.0 Reindexing and maintenance of separate Bath profile compliant indexes.

6.0 ISO ILL Protocol (10160/10161) compliant and compliant with the profile developed by the ILL Protocol Implementors Group (IPIG). The profile is known as the IPIG Profile for the ISO ILL Protocol.
- 6.1 For ISO ILL Protocol, see http://www.nlc-bnc.ca/iso/ill/
- 6.2 For IPIG Profile Version 2.0, released April 2001, and amendments, see http://www.nlc-bnc.ca/iso/ill//ipigprfl.htm
- 6.3 The ILL Protocol is a set of well-defined rules and procedures that specifies information to be exchanged and defines how that exchange is completed. The protocol governs communication between ILL systems, not within an ILL system. IPIG protocol compliance increases the likelihood of interoperability and reduces the variability that exists within the ISO Protocol itself

7.0 NCIP (NISO Circulation Interchange Protocol)

7.1 http://www.niso.org/committees/committee_at.html#links

7.2 Defines how a circulation message is sent between vendors and provides interoperability among disparate circulation, interlibrary loan, and self-service applications. Includes Circulation/Interlibrary Loan, Self-Service, Direct Consortial Borrowing, and Remote User Authentication (RUA, which is currently withdrawn due to lack of security)

7.3 NCIP is in development and not yet an established standard. Ask your vendor about their involvement in the NISO NCIP Committee and about their demonstrated commitment to the protocol.

8.0 Export capability for MARC bibliographic records, item records, and patron records

We recommend that libraries acquiring new or upgraded integrated library systems consider the following:

- assure during the RFP and negotiation stages that their new system includes the capabilities above
- explore consortial arrangements with regional or same-type libraries or with existing coops or systems to leverage investment rather than purchasing a small standalone system with limited capability

In order to facilitate widespread participation, we recommend that LM provide incentives by:

- supporting dedicated Internet access for libraries without connections or for those with dial-up only
- encouraging libraries with no automation or automation that will not allow full participation to join a shared or regional integrated library system. Such a system ought to include an online catalog and circulation module.

Readiness of Libraries in Michigan to Participate in a Statewide Resource Sharing Network

Michigan has over 1500 libraries. In 2001, almost 600 libraries responded to a survey conducted by RMG. 420 of those libraries have library automation systems, representing fifteen automation vendors. Of the 420 libraries with an integrated library system, 381 have dedicated Internet access. There are an estimated 25 million unique titles held statewide.

Starting from the survey, we have identified two potential groups to participate in the initial phase of a statewide resource sharing service. These groups represent school, public, academic, special, and multi-type libraries from all over the state.

The first group includes 45 libraries and eight library host sites that are interested in participating in the initial phase of a statewide network. Eleven different automation systems are in use. Each participant has Web access to their catalog, Z39.50 installed, and all have dedicated Internet access. We have also estimated that this group contains approximately 10 million titles.

Several already participate in resource sharing projects—some while maintaining standalone catalogs and others through shared automation systems.

The second group includes nine libraries without integrated library systems that are interested in participating in the initial phase of the statewide network.

At the time the statewide resource sharing service is launched, it is expected that many more libraries will participate. This listing should only be considered a snapshot of libraries. While our variety may present some difficulties and complexities, these libraries are enthusiastic about making this statewide initiative a success.

Resource Sharing and Portal Recommendations

We have grouped our recommendations for the resource sharing service and the portal into two categories: Near Term and Longer Term. These recommendations are in addition to factors in other sections of this report that are important for the success of a statewide resource sharing system.

Near-term recommendations are actions that we believe should begin immediately or within the next 6 to 12 months. These actions should precede the actual procurement process. They include activities that will better prepare libraries and the state for a statewide resource sharing system and provide a solid foundation as we move forward. They include important considerations for libraries as they plan automation projects and pursue grants, for funding agencies as they evaluate grant proposals, and for state agencies and organizations as they plan initiatives and educational programming.

Long-term recommendations are expected to begin in approximately twelve months or when the procurement process for a statewide resource sharing system begins. They provide a primary focus on user needs and suggest guidelines for the procurement, implementation, and future enhancement of the resource sharing system.

Near Term Recommendations (6 to 12 months)

To lay the necessary groundwork for a statewide resource sharing service:

1. Implement the portal as the first service to be deployed. To develop user familiarity with the portal, access can begin with MeL databases and Internet sites. Using the portal to search Z39.50 servers in Michigan libraries could be an interim step prior to providing users with a union catalog and integrated resource sharing service. Access to digitized resources could be added whenever such resources become available.

2. After using MeL as the initial portal platform, plan to migrate to more sophisticated portal software within the next twelve months.

3. The vendor for the portal and the vendor for resource sharing need not be the same. If they are not the same, the portal needs to interoperate seamlessly with the resource sharing system. Because of the significant overlap between the two components, both ought to be included in the same procurement process.

4. Investigate ways to support dedicated Internet connectivity for libraries with no connectivity or dial-up access only.

5. Leverage resources and facilitate fullest participation in a statewide system.

6. Clarify naming of services and components immediately.

7. Begin to collect library bar code format and range information for future authorization purposes.

8. Encourage libraries to automate through existing regional systems and cooperatives or other shared system initiatives rather than purchase of a small standalone system with limited capability.

9. Investigate the need for a shared integrated library system for libraries that are not served by regional cooperatives, and develop a mechanism for meeting that need if it exists.

10. Encourage libraries that are purchasing or upgrading systems to seek the capabilities listed in Local System Requirements.

11. Publicize shared system options and Local System Requirements widely so that Michigan resources are invested to support full participation.

To demonstrate feasibility and scalability of various models, serve an increasing number of residents, and gain experience with emerging resource sharing services:

1. Build on the pilot projects already in place. Demonstrate proof of concept, from which we can learn about training, timelines, and other implementation issues.

2. Invest in pilot projects that demonstrate applications of emerging standards that will serve as a foundation and position the state to take full advantage of these standards, such as NCIP or other mechanisms to meet the authentication requirements for resource sharing.

To prepare for the procurement process:

1. Create and maintain a database of library readiness. The database ought to be Web accessible and contain information to indicate whether a library is ready to participate in the resource sharing service. Information that ought to be captured includes library type, participation, if any, in a shared system, automated system vendor, version number, Z39.50 capability, etc.

2. Provide educational programming on the development and implementation of standards to support resource sharing, with special focus on emerging standards and services such as NCIP, ILL interoperability, authentication, and the openURL framework.

3. Monitor and maintain awareness of vendor and marketplace developments.

4. Establish a task force on serial holdings of Michigan libraries to identify how and where Michigan libraries maintain their serial holdings. Identify and monitor emerging standards and options for electronic delivery of non-returnables and user links to licensed electronic resources.

Long-term Recommendations (12+ months)

To focus on user needs, provide for user success, and maximize user satisfaction, the system selected ought to:

1. Provide a comprehensive catalog of state holdings, including materials of all types, regardless of their lending status.

2. Provide a fast and easy search of the entire state's holdings.

3. Assure that searching is available to all residents from the beginning.

4. Allow initial implementation as a resource sharing initiative, not only a searching initiative. This recommendation minimizes user frustration from unmet expectations and capitalizes on experience from other states.

5. Provide, at the outset, patron-initiated requesting for patrons from a small group of initial full participant libraries.

6. Also provide a mechanism for alerting patrons of libraries not in the full participant group to the availability of traditional ILL, with plans to add other libraries in stages.

7. Consider libraries in statewide pilot projects as early participants, bringing commitment and experience with resource sharing as well as users with high expectations.

8. Provide delivery to support the resource sharing participants as soon as the resource sharing software is operational.

9. Include enriched content, such as book reviews, cover art and table of contents, to enhance user success in identifying needed materials.

To build on standards and market developments, the procurement process/system(s) selected ought to:

1. Seek and evaluate benefits of proposals that combine portal and resource sharing capabilities to take advantage of the convergence underway in the marketplace in which library automation providers are rapidly developing impressive portal functionality.

2. Maximize interoperability and participation by seeking adherence to standards.

3. Maximize efficiency by seeking a system that provides circulation interoperability, in addition to standard interlibrary loan transactions.

4. Assure that Michigan libraries with older or less sophisticated automated systems can participate in the statewide resource sharing initiative.

5. Require that potential vendors propose how and to what extent libraries with varying local capabilities may participate.

6. Assure that participating libraries at all levels of automation, including those without an automated system, have the capability to lend as well as borrow and for their users to request as well as search.

To successfully implement the resource sharing system chosen:

1. Establish resource sharing and delivery of returnables as a first step.

2. Start implementation with a representative group of committed libraries and add additional libraries in phases.

3. For each phase, select representative libraries that reflect MeL's principles of multitype participation and geographic diversity.

4. For each phase include libraries at different levels of automation with various systems, recognizing that levels of participation must vary.

5. Provide and fund on an on-going basis a broadly representative coordinating body with a strong central authority for operations, including coordination, training, help desk, and system operations.

To support future enhancement through resource sharing of non-returnables and electronic resources:

1. Explore mechanisms to support resource delivery of non-returnables that integrate serial holdings and also explore how to incorporate electronic resources and electronic article delivery.

2. Plan to add non-returnables, preferably including desktop delivery, as soon as possible after the initiative is established, in recognition of users' needs.

Criteria for a Statewide Delivery Service

A key component of the proposed statewide resource sharing system is a method for physical delivery of those items not yet available electronically. A delivery solution that provides fast, efficient delivery of library items to the customer will be necessary for successful implementation. This solution will enhance the value and use of the statewide information delivery system and positively impact its success in fulfilling customer information needs. We believe that an efficient delivery system will be the "magic" that makes any statewide resource sharing program effective for the public. Such statewide delivery is a reality in many other states, and those states offer a variety of models for Michigan to consider. We believe the need for such a system in Michigan exists now, so it is imperative that planning proceed as quickly as possible.

We recommend implementation of a statewide delivery service that offers low-cost, rapid exchange of materials among participating libraries, with most deliveries taking 24-48 hours. Several states, including Wisconsin, Ohio, Texas, New Mexico, Arkansas, Oklahoma, Oregon, Pennsylvania, Florida, and Massachusetts have introduced statewide courier delivery services. While details of these services differ from state to state, each is designed to meet the unique and specific needs of the libraries within each state. After careful research and substantial discussion, we recommend that the state of Michigan adopt a statewide delivery system as described below.

Delivery Recommendations

Based upon our review of these models, and our survey of existing conditions, we offer the following recommendations for statewide delivery in Michigan:

1. The goal of the statewide delivery system should be a maximum of 48 hours turnaround time between all participating sites. This would be in support of an overall ATLAS goal of timely delivery to patrons. Next business day service should be the norm whenever possible.

2. The use of an existing courier delivery provider for delivery to those libraries currently unserved will be the most effective model for Michigan.

3. Existing delivery service in some cooperatives and REMCs may continue to be the most effective solutions for those libraries, and should be efficiently integrated into any new statewide system.

4. The Library of Michigan should solicit proposals from existing courier delivery providers for delivery service to libraries statewide.

5. A "Pilot & Grow" approach may be the most effective way to begin, with perhaps four or five initial sites within each library cooperative region. Cooperative Directors and REMC Directors will be important resources in ensuring adequate geographical coverage.

6. Initial sites ought to be chosen based upon past history of resource sharing and evidence of a commitment to the project as demonstrated by a willingness to provide a local match of funding.

7. Initial sites ought to be chosen to insure adequate geographic spread and representation of the state's geographic diversity.

8. The ultimate goal is to provide service to every library in the state. Actual participation will remain a local decision.

9. Funding for the system should be a combination of state subsidy and reasonable local match.

10. Sites served by existing delivery service should receive comparable state subsidies, as long as provision is made to tie into the statewide system, and meet the benchmarks established by the statewide system.

11. At a minimum, LM should aggregate current demand by working to procure a delivery service for interested libraries, with the full cost to be borne by the libraries if no state funding is available.

12. A uniform fixed annual fee per participating site is the preferred method of costing by the vendor.

13. To encourage participation and reduce costs, two or more neighboring libraries may share a drop site.

Criteria for Promotional Activities

The goal for promotional activities is to inform, educate and foster the support of the Michigan library community for statewide resource sharing service and for MeL in general.

Promotional Activities Recommendations

Promotion of the statewide resource sharing service should be part of a broader range of activities taken to promote the MeL. As part of that broad-based project, we recommend that the following activities be undertaken.

1. We recommend contracting with a firm or consultant to create a complete marketing plan. The plan would examine names of all services and would coordinate promotional activities for the implementation and rollout. The plan ought to include activities, such as billboards, public service advertisements, etc, to promote the new MeL and resource sharing service directly to Michigan residents.

2. Use newsletters to communicate information.

3. Development of a Frequently Asked Questions (FAQ) site that includes timelines and up to date information. This site should be linked to other Websites including MLA/MLC/MAME/SLA, etc.

4. Information messages and updates should be sent out regularly on existing electronic mailing lists.

5. Develop and offer presentations, conference programs, special meetings, and workshops on this topic. These can be offered separately or as part of existing meetings and conferences.

6. The key activity will be onsite staff development training opportunities and onsite training for local officials, including public library trustees. It is critical to have training for local officials as well as librarians. These sessions will increase and enhance the credibility of the statewide service.

7. Promotion activities should be coordinated with other groups working on statewide library promotion and public relations efforts.

8. Schedule a gala "grand opening" celebration.

9. Create one to one contacts at the local level to serve as the "local resource" for information updates and accuracy.

10. A promotional tool kit ought to be created and distributed to all libraries. Include sample press releases, talking points for discussions with local media, bookmarks, informational brochure, and point-of-use display for next to computer or circulation desk.

11. It is important to market this project to all types of libraries - public, academic, special and school. Each type of library has networking activities, electronic mailing lists, newsletters, etc. All of these vehicles should be used to spread the word.

In conclusion, the local contacts and local training are the key elements. The second most important facet is to have accurate, up to date information available and easily accessible to the profession.

Criteria for Training

If the implementation of the statewide resource sharing service is to be successful, a comprehensive training program must be developed. If library staff members do not have the knowledge necessary for them to use the service, they are unlikely to promote the service to their patrons, and we will not achieve our goal of improved library service for all Michigan residents.

Accordingly, we have identified three major goals for the training program.

1. To provide training to establish working knowledge for library administrators, system administrators, catalogers, and staff who will perform the borrowing, circulation and delivery tasks within the new system.

   Staff members at participating institutions may have concerns about policies and may have initial resistance to the new system. Unless these concerns are addressed prior to training, several other statewide resource-sharing coordinators indicated that training sessions could become an open forum for staff to air grievances with the new system, using valuable training time. To assist with this, we recommend holding an administrative briefing that must be attended by library staff at the administration level at each participating library. In addition, the director of each participating library should sign a letter of commitment agreeing to abide by the policies established for participation.

   As part of the start-up process for the new service, staff at participating libraries should attend one of several large regional sessions where someone from the Library of Michigan or the coordinating agency explains the policies for participation. These sessions should also be attended by library administrators. Staff at participating libraries should have an opportunity to ask policy questions at these sessions. Then it should be stated at the beginning of individual training sessions that the training will cover procedures and not be a forum for policy discussions. Policy discussions should be directed to library administrators.

   Staff members who provide the cataloging, borrowing, circulation and delivery tasks associated with the new system will need in-depth training. System administrators will also need training in the technical configuration of the new system. These staff members may have had some previous experience working with an automated library system. However, several of their new required tasks may be completely unfamiliar to them. In order to be effective, the training should be easily available to participants anywhere in the state without additional fees. If feasible, the training should take place in a training lab complete with the same type of equipment participants will use on the job.

2. To provide on-going training and technical support as the system evolves and as staff turnover occurs.

   Once participating libraries have received their training, they should have the support needed to become familiar with the system and get ready to make borrowing available for patrons. To assist library staff, a support/help desk similar to the AccessMichigan help desk should be available. In addition, staff using the system will need to have a method for discussion among themselves, as well as a way to quickly receive system updates. An email discussion list should be created and joined by all staff using the system. An additional list could be created for all system administrators.

   As more libraries join the resource sharing system, it will be important to continue to provide start-up training for these libraries, as well as continue to update libraries that have been in the system longer. Over time, we will have software upgrades, operating system changes and possible changes in policies and standards. We recommend that regional update training be held each year. These sessions could be in-person, hands-on refreshers or sessions involving distance learning technology. If changes are significant, we recommend additional hands-on training for each library. Finally, we recommend that two user meetings be held each year and attended by at least one staff member from each

participating library. These sessions could have different themes and might target different staff so people might only need to attend the sessions that applied directly to their work.

3. To provide basic training for all library staff assisting patrons with the new system.

   Although not all libraries will be participating in the new resource sharing system, all libraries will have access to the new MeL portal to Internet resources and digital collections. Library staff working at public service points in libraries will need training in this portion of the new service. This audience is very similar to the group of staff members assisting patrons with our current MeL offerings. Training in the new patron interface should be incorporated into the current MeL training program utilizing regional trainers. Training staff is already in place to handle this training. Libraries are familiar with the class request process and with locations that offer these classes. Utilizing the regional trainers allows us to spread the training through all geographic regions of the state in a timely manner. State funding for this service encourages libraries of all types, budgets and sizes to encourage their staff members to attend the training.

   As part of this training, the training team should provide materials that can be used to educate patrons in the use of the new system. Patrons would receive documentation that would be accurate and consistent throughout the state. Many libraries do not have staff available to create patron instructional materials so this would be a direct service to patrons and might encourage increased patron usage of the new system. The patron training materials should also be coordinated with any promotional activities or materials provided for the public.

Training Recommendations

1. Training Coordinated by One Agency

   To accomplish detailed training on the new system, we recommend that one agency have responsibility for overseeing the training program. We also recommend that a training coordinator and training team within that agency be appointed to coordinate all aspects of training for this new system. This team would coordinate training materials, recruit and train trainers, schedule classes, and follow up with individual institutions after the training process.

2. Train-the-Trainer model

   The training for the new system would use a train-the-trainer model. We encourage any future procurement documents for system components to include training by the vendor for two groups of staff. Vendor training ought to be available for technical staff working with the central part of the system. The training coordinator and team may need to receive this training so as to be able to assist with the training of system librarians in participating libraries. In addition, the vendor should train the training coordinator and a small group of training staff in the use of the staff interface for the new system. The coordinator and team would tailor vendor training to meet the needs of Michigan libraries. The team would produce printed instruction materials, practice exercises, and an on-line manual for the system. They would also create on-line help screens, if needed.

   The training team would recruit, train, and coordinate a group of regional trainers who would provide training for participating libraries in their region of the state. Where possible, cooperatives, REMCs, and other training agencies ought to be utilized as regional training centers. By coordinating this training at a central agency, we would ensure that participants in all areas of the state receive training with the same course content. Based on experience with the MeL training program, we recommend at least 30 regional trainers to cover all regions of the state. The regional trainers would be compensated for their expenses and paid an honorarium for each training session conducted. This would allow us to recruit qualified, enthusiastic trainers and reduce trainer turnover. This could also encourage large

institutions, cooperatives and REMCs to allow trainers employed by these institutions to take part as regional trainers, thus helping to offer more classes with a smaller class size.

3. Training Content

   Training would be available for several groups of staff. Initial training would be available for system administrators for each participating library. If our new system involves a combination of a library's local system and a central interface, an effort should be made to train system administrators using the same local integrated library system systems vendor together as a group.

   Staff who will use the staff interface to fulfill requests should receive training that would cover the following topics:

   - Patron Interface (Portal)
   - Borrowing and lending
   - Circulation
   - Delivery

   This training would be delivered to library staff members who have been designated to receive training by their library administrations. The training would be hands-on training designed to give the staff real-life examples of using the system. Every attempt should be made to provide training in labs equipped with the same type of equipment participants would use on the job. Libraries would be partnered with another library also beginning the training process so they could be able to practice what they have learned with a partner before the system is turned on for patrons.

   In addition, records in the new catalog will probably be required to meet a minimum level of cataloging detail. Training in this cataloging standard should be provided for anyone providing catalog records for the new system.

4. Training Required for Participation

   In order to assure a smooth start to this project and to reduce the amount of support required from the coordinating agency, libraries participating in the resource sharing system would be required to have representation at each component of the training.

5. Allow Practice Time for Staff

   To give staff the time to become familiar with the system components, the resource sharing system would be rolled out in stages. Staff would receive their training and begin to work with a practice partner for a short period of about two weeks. The system would be turned on for staff mediated borrowing and lending for a warm-up period of up to two months. At the end of the warm-up period, staff would be expected to have a working knowledge of the system and it would be turned on for patron-mediated borrowing.

6. Incentives to Encourage Participation

   To encourage staff members and libraries to take full advantage of the training, incentives should be offered and barriers should be removed. Certification of staff should be provided upon completion of each module. This certification should be portable if a staff member moves on to another institution.

   To remove barriers, this training should be funded through LSTA, other grant, or state funding, not by the individual library sending staff to training. Subsidized training is common among other states using statewide resource sharing systems. Training should also be available in all geographic regions of the state. It should be available in a timely manner when libraries are ready to begin the start-up process.

7. Assessment

   The training team should make a clear recommendation up front as to which staff members would benefit most from the training. The training team should assist library staff in determining staff attendance by providing a complete class outline, as well as course goals and objectives. The training team should make an effort to assess skill background of perspective students so students with similar previous experiences or from similar institutions can be trained as a group. In addition, post-assessment measures would allow training staff to see if additional training or individual assistance would be required for a staff member taking the training. Evaluations to monitor the training effectiveness and trainer performance should also be created.

Criteria for Digitization Activities

Michigan libraries, museums, historical societies, and schools have a wealth of unique manuscripts, realia, and other objects. Most of these objects are currently available for viewing by walk-in patrons only, often on a hit-or-miss basis. The ATLAS Digitization Committee conducted a brief survey of Michigan libraries and others and found that there are many collections that would be of significant interest to a wider audience and could form the basis for a comprehensive Michigan digital archive.

The statewide resource sharing service would be enhanced significantly if these unique objects were digitized, cataloged using standardized metadata schemes, and made available globally on the World Wide Web through links from union catalog records. For example, a student writing a school paper on Joe Louis might search the Michigan statewide union catalog and find not only citations to books on Joe Louis, but also links to digitized photographs of Joe Louis from the State Archives' collection and even a copy of Joe Louis's wrestling card from his post-boxing career.

On February 1, 2002, the digitization committee submitted a grant proposal for *The Making of Modern Michigan* to the Institute for Museum and Library Services (IMLS). The proposal seeks to encourage libraries to contribute to a digital collection comprised of materials of cultural and historical relevance to Michigan heritage. It proposes that seven regional centers be established for the purpose of training librarians on the use of digitization technology. Each center would be equipped with scanners and other digitization equipment. Librarians with projects could use the equipment at the centers for completing the projects. Small grants would be available to Michigan libraries to help defray costs associated with travel to the digitization centers. The grant proposal recognizes that local libraries and other local cultural institutions are best suited to make decisions about which materials ought to be digitized and how they ought to be used. IMLS will announce grant recipients in the fall of 2002. For a complete copy of *The Making of Modern Michigan* grant proposal, see Appendix 4.

On April 1, 2002, a second grant proposal was submitted to IMLS for a collaborative library-museum project to create a Virtual Artifact Library (VAL). If funded, VAL would create an online environment in which 4th grade Michigan students and others could interact personally and directly with historical artifacts. The program would also serve as a laboratory for experimenting with how digital technologies developed largely at libraries can work effectively with typical three-dimensional museum materials as part of museum-based educational programs. Although libraries will contribute some of the content, the emphasis is not on combining content. Rather, the emphasis is on combining technical and intellectual resources for a specific educational outcome. For a complete copy of the VAL proposal, see Appendix 5.

Digitization Recommendations

The following recommendations will help further refine the vision for the Michigan digital archive and provide a structure for creating new digital objects.

1. Provide training

   Before digitizing a collection, library staff need to know how to select the best items for digitization, when and how to obtain copyright permission, what technical standards need to be met for scanning or digitizing, how to catalog the digitized objects using acceptable metadata schemes, and how to ensure accessibility of the digitized materials via the statewide union catalog. We recommend that a single agency coordinate training in the areas of selection, rights management, digitization technology, and creating metadata for digitized objects. If the first IMLS grant is funded, initial training can be conducted under *The Making of Modern Michigan* project.

2. Staff Expertise

   Libraries, historical societies, schools, and museums will need expert advice when embarking on digitization projects to contribute to Michigan's statewide union catalog. We recommend that LM provide funding for a Digitization Specialist to provide information to Michigan libraries and others on digital library technologies, standards, metadata, rights management, and best practices. In addition to providing information to library and museum staff on an individual basis, the Digitization Specialist would conduct training sessions at various locations throughout Michigan and in some cases could be available for on-site consulting. The Digitization Specialist would offer expertise on the technical components that make digital imaging possible and would direct libraries and others to the regional centers or other providers for actual scanning or digitization services.

3. Collection coordination

   The Digitization Specialist would be responsible for coordinating the development of the Michigan digital archive. The specialist would provide guidance on the coherence of the collection, taking into account the kind of collection that ought to be built and what educational missions are served through the digital archive.

   The specialist would monitor and advise on appropriate standards that librarians who are working on digitization projects could follow. The task of building a federated digital archive, with many institutions contributing to comprehensive collection, is not trivial. It will require sustained and ongoing effort to keep the Michigan digital archive alive and on-track.

Criteria for Staffing

For successful implementation of the statewide resource sharing service, a number of support staff will be required. The total number of staff will be determined by the final choice of vendor and configuration of the service. For example, if we choose to create a physical union catalog, a host site and technicians will be required for server operation and database maintenance. If, instead, a distributed catalog is found to be preferable, a host site with a server will be necessary, but there will be no requirement for database maintenance. In both cases, technical help will be necessary to assist libraries with software installation and maintenance. These calculations ought to be kept in mind as the procurement process moves forward.

Regardless of the format of the union catalog, a project of this size and complexity will require day-to-day staffing and management. Staff are required for a variety of functions involving routine operations, communications with users and vendors, and overall management of the information and technology environment. All activities will need to be supervised by an administrator with overall responsibility for planning, management, operations, and support.

Staffing Recommendations

We recommend that LM fund one FTE who can continue the implementation process, utilizing the criteria in this report as the basis for any procurement documents. For the 12 months commencing upon the hiring date, the coordinator will work on the following. (Actual implementation will be contingent upon the provision of adequate funding.)

1. Creating a flexible procurement process that will allow LM and Michigan libraries to have access to the best available software for resource sharing at a reasonable price. The procurement process will follow all applicable state guidelines.

2. Working with vendors, LM, and other state government stakeholders to create a next generation portal to take the place of the current MeL. Implement the new portal.

3. Developing a delivery mechanism that will provide users with quick delivery of requested items

4. Creating a training plan that builds on current training providers and ensures quality control

5. Implementing Phase One libraries on the new service in 2003

6. Working on development of guidelines for a coherent Michigan digital archive

To achieve the goal of actually implementing the new service in 2003, we recommend that LM consider funding two additional positions within 6 months of hiring the coordinator. These would be a training coordinator and a skilled computer technician. We recommend consideration of an additional position to coordinate the emerging Michigan digital archive.

Timeline

We recommend the following as a 15-month timeline to bring about Phase One of the implementation plan. Due to the vagaries of funding and new software releases from vendors, the following timeline is a snapshot, given our current knowledge about software, standards, and Michigan libraries. Month 1 begins with the acceptance of this report.

1.0 Months 1 – 2

- 1.1 Fund at least one FTE to continue the implementation process.
- 1.2 Form advisory committee of librarians from multitype libraries, accounting for geographic and size of library diversity.
- 1.3 Begin design of procurement process for portal and resource sharing software and hardware.
- 1.4 Begin work on enhancing existing delivery services.
- 1.5 Create Web accessible database of libraries and their automation status.
- 1.6 Prepare detailed recommendations for local libraries to use as they plan for upgrades to existing systems.

2.0 Months 3 – 4

- 2.1 Complete design of procurement process.
- 2.2 Make recommendations for upgrades to existing delivery services.
- 2.3 Advertise for training coordinator and computer technician.
- 2.4 Visit libraries and library governing bodies to discuss plans.
- 2.5 Identify libraries that are ready to participate in Phase One.
- 2.6 Identify incentives for non-automated or insufficiently automated libraries to form or join shared catalogs.

3.0 Months 5 – 6

- 3.1 Develop marketing and promotion plan.
- 3.2 Hire training coordinator and computer technician.
- 3.3 Begin procurement process for portal and resource sharing software and hardware.
- 3.4 Begin development of comprehensive training plan.

4.0 Months 7 – 8

- 4.1 Negotiate with vendors for software and hardware that will be used for interlibrary loan.
- 4.2 Work with Phase One libraries to insure readiness for implementation.
- 4.3 Continue communication with library community about progress and developments.

5.0 Months 9-10

5.1 Complete vendor negotiations and sign contracts.

5.2 Begin software and hardware installation.

6.0 Months 11 – 15

6.1 Install software and hardware for Phase One libraries.

6.2 Training for Phase One libraries.

7.0 Month 16

7.1 Phase One libraries operational.

7.2 Begin Phase Two.

Conclusion

After nearly a year of hard work, we have a plan that identifies the major components of the statewide resource sharing service and how to implement them. With this report, we take the first step on the road to creating a resource sharing service that will continue to level the playing field for Michigan libraries and bring into fruition a library service that will dramatically improve Michigan residents' access to information resources.

It will be a complex task, as can readily be seen from the preceding report. While there is something for everyone in the upcoming service, no single library or group of libraries is likely to receive everything on its wish list. We work and plan and implement in a world of continuing evolution. Software and systems continually change. We anticipate that the software we implement will be succeeded very quickly by improved versions. We are engaged in an iterative process that will eventually lead to a fully integrated statewide system that unites libraries, with a diversity of automation systems, and provides Michigan residents with anytime, anywhere access to the rich resources found in the state's libraries.

Appendix 1 - ATLAS Committees

Courier Delivery Committee

George Bishop, Ovid-Elsie Information Center
Bill Davis, Kent District Library
A. Michael Deller, The Library Network
Steve Dix, Cadillac-Wexford County Public Library
Pamela Grudzien, Central Michigan University
Helga McCann, Southfield Public Library
Michael Piper, DALNET
Tim Richards, UM-Dearborn
Sue Schwartz, REMC 13
David Scott, Ferris State University Library
Dan Siebersma, Chair, Lakeland Library Cooperative

Digitization Committee

Margaret E. Auer, University of Detroit Mercy
Jo Budler, Library of Michigan
Ruth Dukelow, Michigan Library Consortium
Ruth Ann Jones, Michigan State University
Sheryl Cormicle Knox, Capital Area District Library
Bettina Meyer, Western Michigan University
Nancy R. Robertson, Library of Michigan
Michael Seadle, Chair, Michigan State University
Jeffrey G. Trzeciak, Wayne State University

Promotional Activities Committee

Sally Arrivee, Madison Heights Public Library
Dee Callaway, Wayne State University
Kelly Carter, University of Detroit Mercy
John Gleason, East Lansing Public Library
Phyllis Jose, Chair, Oakland County Research Library
Nancy Larsen, Clarkston High School
Eleanor Lopez, Holland Community Hospital Library
Roy Nuffer, Schoolcraft College
Cindy Lou Poquette, Indian River Public Library
Susan A. Pritts, Access/AIC Services
Jean Raber, Michigan Library Association
Mary Rzepczynski, Delta Township District Library
Richard Schneider, Traverse Area District Library
Beth Vander Veen, Kent District Library

ILL Policies Committee

Diane R. Barr, Armada Free Public Library and Armada High School
J. Randolph Call, Detroit Public Library
Cynthia Faulhaber, Miller, Canfield, Paddock, Stone
Denise A. Forro, Michigan State University Libraries
Janet Head, Bartlett School Media Center
Kathy Irwin, Mardigian Library, Univ of Mich Dearborn

Sylvia Marabate, East Lansing Public Library
Linda Neely, Library of Michigan
Anne Neville, The Library Network
Tammy Turgeon, Suburban Library Cooperative
Richard Vettese, Grand Rapids Public Library
Joanne Whitley, Superiorland Library Cooperative
Sheryl VanderWagen, Chair, Lakeland Library Cooperative

Long-term Planning Committee

Harvey Brenneise, Michigan Public Health Institute
Willy Cromwell-Kessler, Detroit Public Library
William P. Davis, Kent District Library
Ingrid Halling, FALCON
George Libbey, Chair, University of Detroit Mercy
Ruth McCrank, Kent District Library
Sandra Martin, Wayne State Univ
Scott Muir, DALNET
Cynthia Terwilliger, Terwilliger Associates

Portal Committee

Becky Cawley, Chair, Library of Michigan
Jim Curtis, Public Libraries of Saginaw
Claudia Diaz, Albion College Library
Judy Dyki, Cranbrook Academy of Art Library
Paul Groll, Department of History, Arts, and Libraries
Pennie Howard, Library of Michigan
Christine E. Johnson, Northland Library Cooperative
Pamela L. Lazar, SE MI Council of Governments (SEMCOG)
Jackie Licalzi, West Bloomfield Twp. Public Library
Jean Montgomery, Superiorland Library Cooperative
Andrew Mutch, Waterford Township Public Library
Leo Papa, University of Detroit Mercy
David Reiman, Monroe County Community College
Craig Rominski, East Lansing Public Library
Mary Ann Sheble, Oakland Community College

Resource Sharing Committee

Anne K. Beaubien, University of Michigan Library
Louise Bugg, Co-Chair, Wayne State University Library System
Suzanne Dees, Superiorland Library Cooperative
Anne Donohue, Michigan Library Consortium
Deb Downing, Bloomfield Twp. Public Library
Nancy Fleck, Michigan State University Libraries
Judy Hauser, Oakland Schools
Janet Ann Hedin, Detroit College of Law at MSU
Denise Hooks, Mott Community College Library
Colleen F. Hyslop, Co-Chair, Michigan State University Libraries
Barbara Kriigel, University of Michigan Dearborn
Lise Hedin Mitchell, Chippewa River District Library
Craig Mulder, Northwestern Michigan College

Martha Pitchford, Lakeland Library Cooperative
Edward Rutkowski, Brighton Dictrict Library
Marcia Shannon, Brighton District Library
Karl Steiner, Valley Library Consortium

Training Committee

Shawn Andary, Superiorland Library Cooperative
Michele Behr, Western Michigan University / Waldo Library
Kathy Cadwallader, Chair, Michigan Library Consortium
Ed Englerth, Hastings Public Library
Margaret Lincoln, Lakeview High School Library
Judi McNally, Fremont Area District Library
Pat Parker, Grand Valley State University
Mindy Schafer, Milford Township Library
Marie-Lise Shams, University of Detroit Mercy Outer Drive Campus Lib
Keith Stanger, Eastern Michigan University Halle Library
Bonnie Jean Swegles, AccessMichigan Trainer CMEd, Info/Services, LLC
Melissa White, REMC 13

Resource Persons

Randy Dykhuis, Michigan Library Consortium
Eileen Palmer, The Library Network

Appendix 2 - ILL Policies

1.0 Introduction

Access to information is a fundamental right of all Michigan citizens. Since no individual library has the resources available to meet all user needs, interlibrary loan service is maintained. It supplements and greatly expands local collections, removes geographic barriers and is essential to libraries of all types and sizes. Successful interlibrary loan service depends on the ability to identify, locate and deliver specific items.

In late 2001, the ATLAS Interlibrary Loan policies committee was charged to formulate policies for the statewide resource sharing committee created by the ATLAS project. The focus of this policy is on the exchange of those materials not available in full-text electronic format.

1.1 Purpose of the ATLAS Interlibrary Loan Policies

The purposes of the policies outlined herein are to:

- Support interlibrary cooperation among all types of libraries
- Encourage continued development of high quality interlibrary loan service to Michigan library users
- Provide standards, guidelines and protocols for consistent interlibrary loan practice at the state level

Interlibrary loan as defined in these policies is intended to serve as an adjunct to, not a substitute for local collection development.

1.2 Existing Interlibrary Loan arrangements

In Michigan, interlibrary loan arrangements have been developed by library groups and networks organized geographically or by mutual interest. The intent of these policies is to expand local interlibrary lending to a statewide level. The policies established in this document are based on accepted national practice and have been designed to be as liberal and easy to use as possible. It is not the intent of these policies to govern interlibrary lending to libraries outside of the State of Michigan.

1.3 Reasons for Adopting a Statewide Policy

Adopting a common policy for all participants in the statewide database network will enable Michigan libraries to:

- Cooperate effectively
- Share resources and expertise
- Deliver information and materials across the state in a timely manner
- Provide consistent and orderly interlibrary loan service to all Michigan residents
- Help ensure equitable lending and borrowing within Michigan

2.0 Definitions

2.1 Interlibrary loan

A transaction in which library material is made available from one library to another

2.2 Patron Initiated Interlibrary Loan

An interlibrary loan transaction that is initiated with a patron request that is not mediated by a library staff member

2.3 Remote Access

The ability of a patron to access library resources from multiple locations.

2.4 Equitable Lending and Borrowing
The principle that means each library's contribution to the statewide effort is proportional but not necessarily equal, recognizing that providing needed information to the residents of Michigan is the ultimate, primary goal.

2.5 Supplying Library
The library that lends an item through the resource sharing system to the patron.

2.6 Receiving Library
The library that receives an item through the resource sharing system.

3.0 Interlibrary Borrowing

3.1 Eligible Users
The Statewide Interlibrary Loan service is available to registered library patrons at any library in the State of Michigan. Users must have a valid library card and be in good standing with their local school, public, academic or special library as defined by the policy of that library. The ATLAS system is available to users from all types of Michigan libraries. Requests to the ATLAS system are patron-initiated and placed directly on the system by the user whenever possible.

3.2 Scope of the Service
In general, the ATLAS system is intended to serve as a secondary resource to a Michigan library's local catalog and regional resources, not as a substitute for local resources.

3.3 Eligible materials
Participating libraries are allowed to choose which formats they will lend through the ATLAS system. Reference materials, microfiche, film, cartographic materials, dissertations, software and other items may or may not be available through the system, depending on local library lending policies.

3.4 Fees
There are no fees for items loaned via the ATLAS system.

3.5 Patron Privacy
Participating libraries are responsible for ensuring the confidentiality of the user according to the Michigan Library Privacy Act (1982, PA 455).

3.6 Copyright Compliance
Copyright compliance (Title 17, U.S. Code) is the responsibility of the receiving library.

3.7 Failure to Comply with ATLAS Interlibrary Loan Policies
The supplying library may suspend service to a receiving library when that library fails to comply with the provisions in these policies.

Policies On Returnable Items

4.0 Supplying Library Responsibilities

4.1 Turnaround Time
Libraries receiving requests should respond to that request in a timely manner. The supplying library should process requests promptly, conditions of loan should be stated clearly, and the material should be packaged according to stated ATLAS policies and procedures.

4.2 Right of Refusal

Supplying libraries are encouraged to loan items as generously as possible. However, it is understood that some items may not be loaned due to heavy local use, condition, local restrictions on use, library's inability to locate the item and its current status.

5.0 Borrower Responsibilities

5.1 Library Patrons

Patrons requesting and receiving items through the ATLAS system are responsible for complying with the conditions of loan established by the supplying library. Patrons are also responsible for returning borrowed items on or before the stated due date as well as for paying any late fees, damage or replacement reimbursement fees while the item is in their possession as determined by the policy of the receiving library.

5.2 Receiving Library Responsibilities

5.2.1 Processing of Borrowed Materials

The safety of borrowed materials is the responsibility of the receiving library from the time the material leaves the supplying library until it is returned to the supplying library. The receiving library and its users must comply with the conditions of loan established by the supplying library.

5.2.2 Returned Materials

Interlibrary loan materials must be returned promptly. Material should be packaged according to stated ATLAS delivery policies and procedures. All material is subject to immediate recall, and the receiving library (and associated user) should comply with a recall request promptly.

6.0 Circulation

6.1 Loan Periods

ATLAS loaned items circulate between libraries allowing enough time for delivery, use of the item and its return. Items loaned shall be subject to receiving library circulation policies and procedures.

6.2 Renewals

ATLAS loaned items may be renewed pending approval of the supplying library.

6.3 Overdue Materials

The receiving library shall be responsible for retrieval of overdue items when notified.

6.4 Lost and Damaged Materials

The receiving library will be financially responsible for lost or damaged items and will reimburse the supplying library for any subsequent charges due to loss or damage. These charges will be determined based on the policy of the supplying library. In the event an item is lost and paid for by the receiving library and it is subsequently returned or found, the supplying library is not required to issue a refund.

7.0 Delivery

All materials should be sent by the most effective method considering their format, the technical capabilities of the supplying and receiving libraries and geographic distance between the libraries. The supplying library should ship material in a timely and efficient manner to the location specified by the patron. Loaned material should be packaged to prevent loss or damage in shipping

Policies On Non-Returnable Items

We anticipate the ATLAS system will handle non-returnable items. However, the function of this portion of the ATLAS system is heavily software dependent. Therefore, policies will be developed at a later date after software selection has taken place.

Appendix 3 - Existing Resource Sharing Systems in Michigan

Vendors were asked to explain how these different systems would interact with their resource sharing system, including local requirements and level of participation.

1. No catalog
   Libraries do not have automated library systems. Examples include Merrill District Library, Coleman Public Library, and Iosco-Arenac District Library.

2. Single library (stand-alone) integrated library system.
   Libraries have a standalone system with varying degrees of features. Examples include Chippewa River District Library, Baldwin Public Library.

3. Shared physical union catalog with no central circulation system.
   Some participants also have their own online catalog/circ system (with patron file) and some do not. The union catalog does not have status information or patron file. Library holdings are periodically updated by having participating libraries provide their holdings to a vendor who creates an updated union catalog. This means that holdings are not current. Usually holdings are at the institution level, which indicates the total number of copies but does not specify branch locations.

   Usually the union catalog vendor provides an ILL module, which allows participating libraries to send requests to each other. Examples include Northland Library Cooperative, Southwest Library Cooperative, Capital Library Cooperative, and Woodlands Library Cooperative. (All use services provided by Auto-Graphics, Inc).

4. Shared integrated library system with a central circulation system.
   The shared system includes a shared patron file, which includes users from every participating library. ILL is done through the circulation system. Examples include Lakeland Library Cooperative, The Library Network, Suburban Library Cooperative, and Flint Area Library Consortium.

5. Shared integrated library system with limited participation in central circulation system.
   Some or most participants in the group or consortium use the shared circulation system and shared patron file that is part of the union catalog. Other libraries in the group or consortium have holdings in the union catalog but do not use the central circ system. Of those who contribute holdings to the union catalog but do not use the central circulation system, some have their own integrated library system with patron file and some do not.

   ILL is provided through the central circulation system for those who fully participate. For those who contribute holdings only and for all participants for titles not found on the union catalog, ILL is provided by the area's public library cooperative through a regional resource sharing system. Examples include Upper Peninsula Region of Library Cooperation and Valley Library Consortium.

6. InMICH (physical union catalog with holdings and status updated from local integrated library systems)
   Currently, all participants also have their own integrated library system, but development is underway to allow participation by one or more libraries with no automated system. Some of the integrated library systems are shared among more than one library. Individual patron files reside on local integrated library system, and borrowers are verified against the individual patron files.

   ILL is done on the individual circulation systems. Participating libraries have a mixture of systems from Innovative Interfaces Inc, epixtech, and Sagebrush.

7. MiLE (linked systems with holdings and status retrieved from local ILS via Z39.50)
   All participants have their own integrated library system. Some of these are shared systems. Borrowers are authenticated in the individual patron files of the local integrated library system.

   Resource sharing system software manages the Z39.50 links, searching, borrowing and lending, and system administration. Both staff and users access the system with Web browsers. Circulation of materials is handled on the local integrated library system. MiLE participants include libraries with systems from six different vendors.

Appendix 4 - *The Making of Modern Michigan* Grant Proposal

Introduction

The Making of Modern Michigan (MMM) is a project proposal from the Digitization Committee of "ATLAS," the Action Team for Library Advancement Statewide[1]. ATLAS is an initiative of the Library of Michigan (LoM), which has contracted with the Michigan Library Consortium (MLC) to develop a state-wide information delivery service. Although Michigan State University Libraries (MSU) will serve as the administrative host for this project, MSU will cooperate closely with LoM and MLC, and the work will be done at locations throughout Michigan.

MMM aims at empowering a wide range of libraries, smaller libraries in particular, to contribute to a digital collection about the Making of Modern Michigan. This theme fits into the K-12 Michigan Curriculum Framework[2], and will especially help communities to identify important parts of their own past. Many small libraries have rich collections relating to Michigan history, but often lack the hardware, software, and local expertise necessary to carry out a digitization project. The intent is also to give the staff at these institutions an opportunity to develop their skills. This project has two outcome-based goals. These are:

- Empowerment. Training libraries in digitization techniques, metadata standards, and copyright issues, to empower them to digitize their own local and often unique materials relevant to 19th and 20th century Michigan history.
- Content. Developing a rich digital collection on Michigan history – including 20th century materials usually excluded from library digitization projects – for use in K-12 Michigan history modules, as well as for scholars and free-choice learners who want to know more about their state or their local community.

The means for achieving these goals are:

- Regional Centers. Establish regional centers throughout the state where libraries without digitization equipment or expertise can go to digitize materials. All centers will be able to do photographic, text, and audio materials. Some will also be able to handle large format materials.
- Copyright. Provide copyright training and a permissions service so that libraries can consider digitizing 20th century materials, which may still have protection under Title 17 of the US Code.
- Standards. Provide statewide standards for digitization and metadata using the Colorado Digitization Project[3] as a model.
- Access. Provide access to digital materials through a centrally managed Website at Michigan State University, with the possibility of adding it to a statewide portal being developed by the ATLAS Portal committee. The option of using OAI Metadata harvesting techniques will also be pursued actively.
- Incentive Grants. Provide incentive grants ($25,000 total) to help libraries, especially very small libraries, to take part in the digitization process.

Taken together, the first four initiatives will create all the necessary infrastructure for libraries throughout Michigan to begin digitizing their rich collections on Michigan history. The last item, the incentive

[1] See: http://www.accessmichigan.lib.mi.us/atlas/digitize.htm
[2] See: http://cdp.mde.state.mi.us/MCF/ContentStandards/SocialStudies/I2.html and http://cdp.mde.state.mi.us/MCF/ContentStandards/SocialStudies/I3.html
[3] See: http://coloradodigital.coalliance.org/

grants, will encourage participation among the smallest libraries – those which find it most difficult to extend their resources to new activities – by providing seed money to defray expenses on a first-time digitization project.

Measurement of the project's outcomes will take place throughout the grant period. Four groups will be targeted:

- Educators. Focus group discussions with K-12 teacher groups will be held at each regional center with teachers from the area.
- Digitizers. Surveys at each training session and after each use of a regional center to ask about the quality of assistance and determine unmet needs.
- End Users. Maintain feedback mechanisms at the central Website, and at other local sites where possible. These mechanisms should include a short survey as well as an email contact for longer comments.
- Public Libraries. Survey both participating and non-participating Michigan public libraries about whether the project is meeting both their training and content needs.

This is the first stage of a larger project. Future participants will include museums and historical societies. Future developments will also include enhancements to the access mechanisms, including the use of OAI (Open Archives Initiative) metadata harvesting tools.

Need

Michigan has a number of libraries that are active digitizers and builders of digital libraries. Among these are the University of Michigan, which has a Digital Library Production Service, established digitization rates and capacity, and a record of large scale digitization projects (e.g., Making of America). The University of Michigan is also an active developer of OAI Metadata harvesting tools with Mellon funding. Michigan State University is producing the IMLS-funded Feeding America project and does active research on spoken word digitization through Digital Library Initiative funding. Wayne State University has been digitizing costume collection materials, the University of Detroit Mercy has produced a collection of images of Great Lakes shipping, and Central Michigan University has digitized county history materials. All of these institutions have rich collections, but even more information about Michigan history, particularly local histories, exists only at libraries where digitization facilities are very limited or nonexistent. A key goal of MMM is to enable these libraries to digitize materials.

The ATLAS Digitization Committee surveyed Michigan libraries in November and December 2001 to discover what types of historical and cultural materials have been digitized in Michigan, whether institutions holding such materials are interested in future digitization projects, and what assistance they would need to accomplish this. Eighty-six libraries responded, including 37 public libraries, 18 academic libraries, 16 libraries serving museums, historical societies, genealogical societies, and archives, and 15 school, special, and other types of libraries.

Nearly half the academic libraries had completed some type of digitization project, while only 6 out of 37 public libraries had done so. However, 30 of the 37 public library respondents indicated that they do have collections they are interested in digitizing. These holdings cover a wide range of materials, including architectural drawings and building records, cemetery records and obituaries, vital records and other genealogical material, letters and manuscripts, books, photo collections, audio and video recordings and artifacts.

Survey respondents were also asked what type of assistance they would need to begin a digitization project. Funding was mentioned by most respondents. The other areas cited most frequently were assistance in selecting metadata formats and creating metadata; training in technical imaging; designing a

system for public access; providing for long-term digital preservation; and selecting digital formats. A significant but smaller number mentioned copyright. This may reflect the fact that most respondents had limited their digitization efforts to pre-1923 materials and items for which the copyright is held by their home institution. The 20th century focus of MMM will require participants to learn about copyright issues regarding more recent materials.

Empowerment

MMM particularly encourages local digitization and hands-on participation, even for libraries with no digitization tools or experience. The goal is to empower these libraries to digitize their own materials within a support environment that provides standards and training. This is not efficient in the short run, but it allows the work to be done by the owners of the original materials at or near their own institutions. The expectation is that participant libraries will grow comfortable with the digitization process, and will have confidence to continue to produce digital materials: perhaps even to purchase equipment because they know how to use it, or become knowledgeable enough to develop grant proposals and contract for digitization services.

Digitization techniques and standards are now taught in many, perhaps even most, library schools, but only the newest librarians have had an opportunity to learn them. MMM brings hands-on digitization training to librarians who graduated before these courses became popular. Library boards and library administrations often take a conservative approach to purchasing equipment for digital projects. MMM is designed to make equipment purchases unnecessary, so that budget size and flexibility are not limiting factors for participating in a digital project.

Small Libraries

One option is to allow smaller libraries to send their materials to a central resource for digitization. That would guarantee standards and offers an efficient approach with some economies of scale. Although an important focus of this project is to develop hands-on skills in digital production, having a staff member spend even a few days at a regional digitization center might be too difficult for the one- or two-person library.

MMM recognizes that the process of selecting items for digitization, determining the copyright status, and creating metadata are equally critical parts of the overall digitization process, and these can only be done locally. This kind of learning experience can be extended to even the smallest libraries by having the regional digitization centers do the digital production work at an affordable cost for those institutions unable to release a staff member for travel. Libraries (of any size) will be able to hire the regional centers on their own or use incentive grant money. This option will be available for MMM participants who are willing to send materials to another institution and agree to that institution's handling conditions (e.g. disbinding). For some libraries, this is the only realistic way to participate.

Incentive Grants

The incentive grants are designed to cover only part of the costs of digitization. The purpose of the grants is to give tangible financial support to small libraries which might not be able to consider any digitization project without financial assistance. The application process will use a simple online or paper form that requests the following information:

- Institutional name
- Materials to be digitized (number of pages, photographs, minutes of audio tapes, etc.) and publication / creation date.
- Staff time expected to be spent on training / digitization.
- Can the digital materials be hosted locally?

Thirty-two incentive grants will be for $500, roughly equal to 2.5 days of staff time. For that amount, a library would be expected to spend at least 5 days (including training and travel) on digitization efforts. Thirty incentive grants will be for $300, roughly equivalent to 1.5 days of staff time. Both categories would also be expected to cover travel costs in accord with local policy. Incentive grants could also be used to contract for services at the University of Michigan's Digital Library Production Service (especially for larger or more complex materials) or one of the regional centers.

A committee of 5 librarians chosen by the Library of Michigan would evaluate incentive grant proposals. One round of funding would take place 6 months after the start of the project. Another would take place 12 months after the start. The money would be paid after the first visit by library staff to either a training session or a regional digitization center.

The criteria for judging the incentive grants would include:

- Degree of commitment from the library to undertake digital projects.
- Appropriateness of the material.
- Possible copyright complications or unusual difficulties in finding rights holders.
- Balance among the regional centers.
- Work plan for completing the project.

The training sessions offered to MMM participants (described below) will address some of these issues in greater depth, particularly copyright issues and digital project planning. To assist libraries applying for incentive grant applications, some staff at the more experienced regional centers will offer individual assistance and consultation in planning digitization projects. This assistance could be given by phone or email, or during events such as the Library of Michigan-sponsored Small and Rural Libraries Conference scheduled for May 2003.

Incentive grants are not necessary for libraries to take part in MMM or to use the facilities of the regional centers. All of those using the regional centers need to contact them to make scheduling arrangements.

Regional Centers

MMM would establish eight regional digitization centers at institutions around the state. These are:

UPPER PENINSULA	Hiawathaland Library Cooperative
NORTHERN LOWER PENINSULA	Traverse Area District Library
CENTRAL LOWER PENINSULA	Central Michigan University
SOUTHWEST MICHIGAN	Western Michigan University
MID MICHIGAN	Michigan State University
SOUTHEAST MICHIGAN	Wayne State University
SOUTHEAST MICHIGAN	University of Detroit Mercy
SOUTHEAST MICHIGAN	University of Michigan (contracted services; no walk-in traffic)

The intent is to minimize driving distance for libraries that want to digitize materials, with a goal of making it possible for 95% of Michigan libraries to be able to reach a center in no more than 2 hours of driving time. Since driving time is heavily dependent on traffic, we propose establishing two centers in the Detroit urban area. The University of Michigan will provide production services for bitonal scanning (for book-like objects) and continuous tone image services (for photographic or other visual resources)

and will serve any participating libraries which decide not to do their own digital production work. No drop-in services will be available there.

Each center would house equipment necessary for capturing images and sound. At a minimum this would include a computer with scanner and OCR (Optical Character Reader) and a digital audio recorder for conducting oral history interviews. Grant money will be used to provide flatbed scanners, computers, and digital audio recording equipment as needed. Institutions will be able to make the purchases themselves, but MSU will provide recommendations. Institutions will also contribute the availability of some of their existing equipment as part of their cost-share commitment. The following institutions will offer specialized services:

- Central Michigan University: overhead scanning using a Minolta PS3000 for tightly bound materials that cannot be disbound.
- Michigan State University: analog audio digitization from reel-to-reel or cassette, and overhead scanning using a Minolta PS3000.
- University of Michigan: digitization for bitonal scanning, continuous tone images, or complex materials which can be disbound.
- Wayne State: analog audio and video in multiple formats.

Training

Training in digitization will take place at three levels. The first level will be for training the trainers and will focus on staff in each of the regional centers. This will include selection, hardware use, scanning standards, OCR use, digital object management (including storage), copyright, and metadata creation. The training will include decision making about when color or black and white are preferable, and when to use OCR software to create a preliminary transcript. Training will include the use of digital audio recorders, obtaining permissions, and general oral history techniques. The training will also cover how to manage focus groups and other evaluation methods. MSU and the Library of Michigan will jointly host one of these training sessions; Wayne State University will host another.

The second level of training will take place in each of the regional centers. It will cover the same range of topics, but the primary audience will be libraries in the area that want to participate in MMM. Regional staff will serve as the primary trainers, but at least one of the first level trainers will also be present to assist. Level two training sessions will take place twice during the grant period.

The third level training will take place at each regional center and will focus on visiting staff from other libraries who want to use the digitization resources. As a practical matter, people who have attended training sessions, but not had ongoing hands-on-practice, will forget key details. Third level training will focus only on the type of digitization relevant at the moment, and will be hands-on. While regional center staff will be expected to answer questions and help solve problems, they are not expected to do the digitization work. This is the responsibility of those bringing materials to the centers. Libraries that would rather not have their own staff do the digitization work may make private arrangements to hire the services of any of the regional centers. Those hiring services will be encouraged to participate in the training, so that they understand the process.

The University of Michigan, through its Digital Library Production Service, will contribute (as cost share) $30,000 in its digitization capacity toward bitonal scanning and continuous tone image services. (Information about its rates and services can be found at http://www.umdl.umich.edu/pubs/digit-services-brochure.html)

Content

The Making of Modern Michigan theme has a breadth that should make it possible for most libraries throughout the state to contribute materials. Choosing only 19th century or early 20th century history would exclude communities that did not exist at the time, and would exclude much of the history of the auto industry, which is as integral to 20th century Michigan as the logging and mining industries were to 19th century Michigan. A city like Livonia, for example, had a scant 10,000 people in 1950, and Livonia residents relied on the neighboring Detroit and Plymouth public libraries. A decade later it had surged up near 100,000, had a significant industrial base, and had established its own public library system.

The kind of project that enables such a community to capture its own history in digital form must also deal with a variety of media, not just photographs and documents. Oral history in particular offers a way of capturing the recent past. Libraries can either organize systematic interviews of founding members of their communities, or emulate the experience of the Museum of the Person in Brazil and establish places where residents can come to record their own stories. Grant money will be used to purchase inexpensive digital audio recorders that the regional centers can loan for a month at a time to participating libraries for oral history projects. Those making recordings will be asked to sign a permissions form, which specifies whether the recording may be made available on the Web, or may only be used within the library.

More traditional content will fit within the project as well. This includes photographs, maps, and local histories. The Council of Library Deans and Directors (COLD), which includes all of the state's 15 public four-year institutions, is planning a project to digitize county atlases and histories, which are often held by smaller libraries. Digitization of these materials could be done by the local libraries or by COLD member institutions.

MMM does not expect to gather a critical mass of research-oriented content within the two year grant period. The goal of empowering local libraries means letting them select their own materials to digitize, rather than imposing systematic coverage. This does not mean that the results will be unfruitful for academic research. The number of unique materials hidden in libraries across the state should benefit scholars from many disciplines. But the orientation will be local, with the hope that communities will use this as an opportunity to capture and celebrate their own past. It will build an historical mosaic, some pieces of which will need completion in later phases.

Standards

MMM will expect participating libraries to follow national standards for digitization and metadata. The Colorado project has done a great deal of work to define standards[4] that work for a state-wide project, and it makes sense for MMM to refer to and build on those standards rather than reinvent them. Standards work is expensive, time consuming and intellectually demanding. Those regional centers that are already active digitizers generally follow standards similar to those in the Colorado project, and to some extent contributed to them as national leaders in particular areas.

Scanning standards for images will follow those used in national projects such as Making of America and American Memory. Generally these will be at least 400 dpi (dots per inch) for full color (24 bit depth) images, and 600 dpi for black and white (1 bit) images. Standards for analog-to-digital audio conversion will follow those of the Vincent Voice Library at MSU: a sampling rate of 44.1 mhz, 16 bit, for monaural sound recordings, which includes most oral history and private recordings.

Descriptive metadata standards are particularly important, since metadata creation will be the responsibility of each participating library, and will not be done at the regional centers. Only the owner

[4] See: http://coloradodigital.coalliance.org/standard.html

of the original materials is likely to have sufficient information about them to write reliable descriptions. As in Colorado, Dublin Core (DC) records will be the norm for monographs and other stand-alone items, including photographs. One additional expectation will be that the records comply with OAI metadata harvesting requirements. Encoded Archival Description (EAD) will also be a standard for collections of materials. The collection level information for these EAD records should be compatible with OAI Metadata Harvesting.

Both DC and EAD formats encourage the use of controlled vocabularies for subject access. The *Library of Congress Subject Headings* clearly would be one option and for many libraries this would be most feasible. Other possibilities include the *Revised Nomenclature for Museum Cataloging*, the *Social History & Industrial Classification*, and the *LC Thesaurus of Graphic Materials*.

Several options for metadata creation will be available to help reinforce the guidelines, including Web-based forms that produce fully encoded DC and EAD. MSU will produce the Web forms for EAD and DC along with a support Website for using the templates.

Interns

MMM will use library school interns from both of Michigan's American Library Association accredited library schools to assist with training at the regional centers. These interns will take part in the first level training, travel to regional centers to assist in second level training sessions there, and serve as first level trainers at their own home institutions. Participation will benefit the interns by giving them hands-on experience in developing digitization services, and will expose them to the problems and opportunities of smaller libraries throughout the state. Both UM and Wayne will nominate candidates for the internship positions, and the candidates will be interviewed by the MMM management team. The internships are envisioned as full-time positions of 40 hours per week for a period of 15 weeks (one semester), with compensation of $12.50/hour.

Access

While access is not the primary focus of this project, it is of course critically important. Materials which are not easily located or displayed simply are not used. MMM plans both to provide access through a collective Website and to encourage participating libraries to host their own materials on a local Website. This dual approach will reach the largest number of users. Michigan residents exploring their local library's Website will find materials relating to their own community and be guided to the statewide collection. Users of the statewide site, meanwhile, will be led through diverse collections to items to specific interest.

MMM plans to cooperate fully with other resources being developed as part of ATLAS, particularly the Web portal which will offer a central location for a wide range of information services, including a common catalog. Since specifications for the portal are still being defined, alternative plans are also necessary. If the ATLAS Portal is unavailable when MMM materials become available, MSU will develop a Website and provide data storage. There are several options for the search interface, including the XPAT software from UM, image management and metadata harvesting software from Innovative Interfaces, Inc., and OAI metadata harvesting tools. MMM expects access plans for other parts of the ATLAS initiative to be decided before grant funding would begin. Locking MMM into specific plans at this time would not serve the goal of statewide cooperation on such infrastructure elements.

The Library of Michigan will serve as a permanent repository for all of the DC records. MSU will serve as a permanent repository for the EAD records. Both will work with the University of Michigan to make these records available to its Mellon Foundation funded OAI Metadata Harvesting project.

Copyright Training

Most digitization projects have avoided 20th century materials because of copyright complications. These complications are significant, but a combination of copyright training and a service to obtain appropriate permissions can be used to make the materials available. MMM will provide both.

The training will consist of half-day sessions that cover the basics of copyright law, including what is protected, how long the protection lasts, and what exceptions exist including fair use. It will also cover legal issues for unpublished and audio materials. The goal of this training is to help libraries generally, and regional centers in particular, to recognize potential copyright advantages or complications. For example, a local work published before 1963 may not have had the copyright renewed and may actually have fallen into public domain. A work published before 1978 without notice of copyright would definitely have fallen into public domain. A set of unpublished papers whose authors died less than 70 years ago would be protected, and the heirs would need to be found for a permission to be granted. An unpublished photograph taken after 1978 as part of a corporate work-for-hire arrangement would be protected for 120 years and the corporation would be the rights owner, not the photographer (though the photographer might have moral rights in the pictures).

Some copyright training will take place during the level one digitization training, but sessions will also be offered at the regional centers throughout the project. The basic information for these training sessions will be available online at MSU, so that staff at regional centers and at participating libraries can refer to them. MLC and MSU staff already provide some of this training, as requested by local library groups. One example is a recent half-day training session for Wayne County media specialists.

The training will make people more aware of copyright issues, but cannot answer all questions. Staff at MLC and MSU will provide ongoing reference assistance for copyright questions. This information, and the training itself, cannot be considered legal advice. It is merely information. Libraries and individuals must make their own decisions about when digitizing is legitimate.

Permissions Service

A centralized permissions service is a critical element in enabling the use of copyright protected materials. Such a service exists already at MSU to support the Digital Library Initiative-funded National Gallery of the Spoken Word project as well as MSU's distance education program. Records of all requests are available online, along with their status. Copies of permission letters are stored so that they can be made available as needed, should any questions arise. The permissions service ordinarily requests a permanent permission for non-exclusive unrestricted use, and emphasizes the educational use of the materials.

Most non-commercial rights owners are happy to grant such a permission. This makes materials available to every student and adult learner in the state and the world. For those rights holders who insist on restrictions, MMM will include the option of access only to authenticated users via the ATLAS portal now being developed. The MMM permissions service will not offer the option of restricting access to particular Internet address ranges, because of the difficulty of establishing those in such a way that everyone in the state could get access.

The permissions service naturally cannot guarantee success. When rights holders refuse permission, the requesting library will be informed and the materials will not be digitized. When rights holders cannot be located after a good faith effort, libraries will be free to take advantage of the clause in the Copyright Extension Act that allows libraries to copy materials more than 75 years old, as long as no objection is raised (17 USC 108h1). Otherwise libraries will be advised to choose other materials to digitize and publish on the Web.

Correct provenance and citation information is critical for the permissions service to carry out its job. The MSU permissions service has an established set of forms to collect key information from those submitting requests. Those submitting the requests will also be expected to supply additional information, as requested, if they can get it locally.

Evaluation

MMM is aiming at three specific outcomes: empowering Michigan libraries to digitize locally held materials, building a content-base of digital information on modern Michigan history, and providing copyright training and a permissions service to enable the use of 20th century materials without infringement. These outcomes can be measured in a number of ways. One is by counting the number of libraries participating in the digitization project. Another is by assessing the quantity and quality of digital materials produced. A third is by tracking how many permissions were requested and received. Although these are important measures, they do not necessarily reflect the impact on people.

Four categories have been picked to measure MMM's impact on Michigan residents. Educators are a particularly important group because their interest in the project will determine whether they use MMM contents in the Michigan history sequences in their classes. Focus groups held at or near each regional center offer the best way of getting detailed feedback. Because focus groups are expensive in terms of teacher time, only one will be held each year (at the end of the first and second years). Training in focus group management will be part of the level one training.

The digitizers themselves are another important group, since they are doing the hands-on work, using the facilities at the regional centers, and are the people whose proficiency with the process will determine whether MMM is a success. Evaluation forms have become a common part of training classes, and these will be used at the end of each training session, as well as at the end of each visit to a digitization center. The forms will be short enough that people can fill them out in a few minutes, and will contain space for free form comments.

Free-will learners represent one of the target groups. They can come from any part of the state, and from any age or occupation. The only opportunity to reach them directly is when they use the materials, either in their local libraries, or centrally on the Website. A short survey will be available to them on the central Website, as well as an email address for comments. MMM will also make the survey available to all participating libraries, though it cannot require them to use it.

Although public libraries are only one of the types of libraries that might use MMM services, they are conspicuous in needing a state-wide support structure to engage in digitization. Few have the resources to begin on their own. Several surveys have already gone out to ask about needs and interest. Public libraries will be targeted for follow-up surveys at the end of the first and second year of the grant to understand both how well the project is doing, and what remains to be done.

All surveys and focus group training done at MSU will first be approved by the University Committee on Research in Human Subjects (UCRIHS). Other regional centers will be expected to get approval through their own institutional channels.

Work Plan

The work plan for this project is broken down into four six-month intervals.

First six months (October 2002 through March 2003): establish regional centers

ACTIVITY	PERSON(S) RESPONSIBLE
Recommend equipment to centers; distribute funds	Seadle
Establish management team	Management team
Establish Incentive Grant Selection committee	Library of Michigan
Advertise incentive grants	Management team
Level one training at MSU/LM and Wayne	Trzeciak / trainers
First regional copyright training	Seadle or Dukelow
Select interns	Seadle with regional center staff
Write first report	Seadle

Second six months (April 2003 through September 2003): training

ACTIVITY	PERSON(S) RESPONSIBLE
Select and award 1st round of incentive grants	Selection committee
Begin second level training (first round)	Trzeciak / trainers / regional center staff
Two additional copyright training sessions	Seadle and Dukelow
Permissions service begins	Carmona-Garcia
Digitization projects begin at regional centers	Regional center staff
Design Website, mount digitized materials	Seadle / Jones
Preservation storage of materials begins	Seadle / Jones
Planning for next phase begins	Management team
First focus group evaluations with teachers	Trzeciak / regional center staff
Write second report	Seadle

Third six months (October 2003 through March 2004): digitization projects begin

ACTIVITY	PERSON(S) RESPONSIBLE
Digitization continues	Regional centers
Use of materials in Michigan history programs encouraged	Management team / regional center staff
Second level training (second round)	Trzeciak / trainers
Copyright training continues	Seadle / Dukelow
Financial resources for next phase established	Management team
Select and award 2nd round of incentive grants	Selection committee
Write third report	Seadle

Final six months (April 2004 through September 2004): access and evaluation

ACTIVITY	PERSON(S) RESPONSIBLE
Digitization continues	Regional center staff
Permissions work continues	Carmona-Garcia
Interns finish their work	Management team
Access through OAI metadata harvesting	Seadle / Jones
Second focus group evaluation with teachers	Trzeciak / regional center staff
Survey of participating libraries	Trzeciak
Transition to next phase begins	Management team
Write final report	Seadle

Management

The MMM management team will consist of the project director, Michael Seadle (MSU); the co-principal investigator, Ruth Ann Jones (MSU); a representative from the Library of Michigan (Jo Budler); a representative from the Michigan Library Consortium (Ruth Dukelow); and the project coordinator, Jeff Trzeciak (WSU). They will have responsibility for the distribution of project funds to regional centers, interns, and to those receiving incentive grants. They will make final decisions about issues that arise in the course of the project, and will be expected to continue the expansion of the project to include museums and historical societies.

A larger MMM advisory board will consist of representatives of each of the regional centers. This board will assist the management team in evaluation and future development. The advisory board will receive all evaluation forms from the centers, all survey results, and will review reports from focus group meetings. They will meet at least once each year of the project during the Michigan Library Association annual conference.

The project director at MSU will have administrative responsibility for grant accounting, financial management, and reporting to IMLS including writing the final report. He will carry out these responsibilities in close consultation with the broader management team. He will also be expected to represent the project as needed on a state and national basis. The co-principal investigator will attend MMM management team meetings and will substitute for the project director as needed in meetings and as a representative of the project. The project coordinator will have responsibility for organizing training sessions at the regional centers, and performing training as time permits, as well as organizing and implementing the evaluation processes, including the final survey.

Staffing

The project director, Michael Seadle, has a PhD in history, over a decade of experience as a professional programmer, and has written and lectured on digital publication. He is principal investigator for "Feeding America: The Historic American Cookbook Project" and co-principal investigator for the Digital Library Initiative Phase 2 project to create a National Gallery of the Spoken Word. He is Digital Services and Copyright Librarian at Michigan State University, and head of the MSU Libraries' Digital & Multimedia Center.

The co-principal investigator, Ruth Ann Jones, is Digital Projects Coordinator at the Michigan State University Libraries. She is project manager for "Feeding America: The Historic American Cookbook Project."

Jo Budler is Deputy State Librarian at the Library of Michigan. She also served as Director of Network Services at the Nebraska Library Commission.

Ruth Dukelow is Associate Director of the Michigan Library Consortium. She has a J.D. as well as a library degree and has taught numerous workshops and training sessions on copyright.

Jeff Trzeciak is Interim Director for Library Computing and Media Services at the Wayne State University Library System.

Jennie Carmona-Garcia will serve as copyright permissions manager. She currently manages the permissions service for MSU online courses and the Vincent Voice Library digitization project.

Preservation

To ensure the preservation of all digital materials, copies of text and image materials will be provided to central repositories with existing long-term digital storage programs. Local libraries will also be encouraged to follow good practices for digital preservation, including multiple copies on a variety of

media such as CD-ROM, back-up tape, and hard disk. They will also be encouraged to check the media periodically (at least once each year), and migrate to fresh media on a regular basis.

MSU will serve as the central repository for long term preservation of materials. It uses the Andrew File System (AFS) from Carnegie Mellon University as its repository system. The MSU AFS space consists of cabinets with mirrored 36 Gigabyte hard disks, with weekly and monthly tape backups that are stored off site. This storage is used for all of the audio materials from the Vincent Voice Library that are being digitized for the Digital Library Initiative-funded National Gallery of the Spoken Word project, as well as for materials digitized for its IMLS-funded Feeding America project.

Encouraging Participation

A key aspect of the project will be encouraging libraries which have never done digitization to make use of the opportunities provided by MMM. One facet of the effort to encourage participation will be wide dissemination of information about the project and the incentive grants. There are many channels for outreach and communication; these include the MichLib-L mailing list, the Michigan Library Consortium's monthly *Communique*, the Library of Michigan's *Access* newsletter, the Michigan Library Association's newsletter *Michigan Librarian*, and email lists and newsletters of the regional library cooperatives in the state. Library conferences also offer opportunities to make the incentive grants widely known and to provide assistance and consulting to libraries preparing applications. In addition to the Michigan Library Association's annual conference, the Library of Michigan sponsors a bi-annual Small & Rural Libraries Conference, to be held next in May 2003. It draws a large number of librarians from the small- and medium-sized institutions which MMM particularly aims to involve in digitization.

Another important facet is communicating to potential participants how to design feasible projects and what the time and cost requirements are likely to be. To that purpose, the management team will develop guidelines which outline the time and effort required to digitize certain types of materials, describe likely scenarios for realistic, achievable first-time projects, and templates for developing a work plan and budget.

The Long Term

This is only the first phase of a long term digitization project for Michigan. No two-year project can reach all of the public libraries, small colleges and universities, museums, archives, and historical associations in a state that is both intensely urban in the southeast and intensely rural in the north. The geography of the state makes travel from, for example, Lake Linden in the Keweenaw peninsula to Monroe in the southeast, a multi-day drive or a complex of long drives to airports and multiple flights on small planes.

The long term goal of this project is to enable Michigan's cultural institutions to participate on their own in the digital world. Some reliance on expertise from the larger universities will always be necessary, but only the local institutions know what materials they have and what they actively want to share.

The next phase of this project will involve historical museums and historical societies. Some conversations with these organizations have already begun, and the work with them can build on training and resource sharing that MMM envisions for libraries. Although historical museums and societies are not specifically targeted for this proposal, they will be welcome to participate in using the regional centers and attending training sessions as space permits.

This planning is being done in close cooperation with the Library of Michigan and the Michigan Library Consortium, and as part of the larger ATLAS initiative. Funding for future developments will be sought from a variety of sources, including the state itself.

Appendix 5 - *Virtual Artifact Library* Grant Proposal

Introduction

The Virtual Artifact Laboratory (VAL) will create an online environment in which 4th grade Michigan students (and others) can interact personally and directly with historical artifacts. It resembles a scientific laboratory in that students can choose both how they will manipulate the artifacts and how they want to learn more about them. It is also a laboratory for experimenting with how digital technologies developed largely at libraries can work effectively with typical three-dimensional museum materials as part of museum-based educational programs. Libraries will contribute content too, but the emphasis is not on combining content. Rather, the emphasis is on combining technical and intellectual resources for a specific educational outcome.

The VAL builds on resources like the *Michigan History for Kids* magazine published by the Michigan Historical Center. The project, like the magazine, focuses on fourth grade students studying Michigan history in preparation for the state-wide Michigan Educational Assessment Program (MEAP) exam. Each issue of the magazine covers a thematic topic, such as French Michigan, the Civil War, and Beginnings of the Automobile Industry. The magazine also comes with teachers' supplements. The magazine is rich in text and images, but as a paper-based medium it cannot provide the same interactive, three-dimensional experience that is possible for students who actually visit a museum—or a virtual artifact gallery.

The immediate goal of the VAL is to provide students (and others) with a more interactive, three-dimensional experience online. Museums like the Michigan Historical Center (MHC) and the Mackinac State Historic Parks (MSHP) have substantial collections of the artifacts that appear in drawings and photographs in the *Michigan History for Kids* magazine, and in the Mackinac State Historic Parks' *Historic Educational Packet*. These tools, clothing, household goods, and personal effects enrich students' understanding of living conditions in past centuries.

Museums often have docents who give tours with detailed aural explanations of artifacts. This project will provide docents in video form to explain the purpose of each object, to describe features as children turn it, and to put the objects in their proper historical context. To provide additional interactivity, children will be able to choose frequently asked questions, and will have additional web- and library-based materials to read.

This project seeks to achieve three specific outcomes:

1. To demonstrate how libraries and museums can work together to enhance existing educational tools by combining technology, artifacts, text, and multimedia. Part of this project will include instructions to museums about how to use simple technology and existing equipment, including regular film cameras, to create the images needed to create the virtual artifacts.
2. To enrich the educational experience of Michigan children during their first encounter with systematic study of state history, and help them assimilate this information more completely into their lives. Although the project is Michigan focused, the topics are of importance to the study of the nation's history, and we expect the web materials to be used outside the state. The Michigan Historical Center's web pages on the Great Depression, for example, are part of curricula in school districts as far away as Texas and California.
3. To build a cost-effective model for the project that will enable the museum and library partners to sustain the project beyond initial IMLS funding and possibly extend it to other museum and library partners.

The evaluation methods for these outcomes are:

1. The establishment of a website that integrates multi-dimensional imaging, multi-media, and text with three themes from the *Michigan History for Kids* magazine: a) the fur trade, b) the iron industry, and the automobile industry.
2. Annual feedback from children and teachers about the website, both through interactive comments and focus groups. MEAP test results for targeted districts will also be a measure.
3. Securing funding commitments for sustaining the project after its initial years of funding.

Need

The need for this project grows from the 4th grade Michigan history curriculum. It simply is not possible for all Michigan 4th grade students to travel to the Michigan Historical Center or the Mackinac State Historic Parks sites to see historic artifacts. Even those who visit the museums are generally not allowed to handle the objects for preservation reasons. The students see them in cases or behind barriers. Their relationship with the objects is at best distant.

Digitization cannot replace the sense of touch that conveys the roughness or hardness of a cast iron nail. It cannot replace the sense of the weight of the axes used to chop wood or fell trees. It cannot replace the lingering mustiness of fur clothes or the smell of wood burning in open hearths. But digital images can allow 4th grade children to manipulate objects. They can turn a nail over to see its head and the dullness of its point. They can see how one side might be flatter than the other and observe the irregularities between one nail and another. The web can also provide a video docent, who, like real docents in museums, can describe the surface, the weight, the smell of each object.

It is important to engage 4th grade children in this hands-on, sensual, interactive way in order to give them some real sense of how past generations of Michigan citizens lived and worked. The Michigan Curriculum Framework puts an emphasis on primary sources, context and analysis. Often the only primary sources encountered are textual or visual in the form of photographs. Text and photos offer excellent insights, but for some children they are too abstract or one-dimensional to stand alone. Putting three-dimensional objects on the web and allowing students to manipulate them reaches out to children who are tactile and kinetic learners. Adding the docent voices reaches those who are more aural than visual.

Putting three-dimensional representations of artifacts on the web is, of course, an incomplete solution unless they are integrated into a program that will reach teachers and students. The VAL will produce web-based artifacts in conjunction with two existing educational programs that are familiar to 4th grade teachers and students.

The first comes from the Michigan Historical Center. The *Michigan History for Kids* magazine is a glossy quarterly publication. It typically runs about 25 pages, with many photographs and with text that is easy for 4th grade students to understand. Examples of the magazine are available online at http://www.michiganhistorymagazine.com/kids/index.html. Accompanying materials include *The Mitten*, a 4-page color reader published monthly during the school year, and a substantial teachers guide. The topics of the two publications interrelate without repeating content. In the 2001-2002 school year, for example, topics for *Michigan History for Kids* include: the French era, the Civil War, Automobiles, and the Upper Peninsula; and topics for *The Mitten* include: the Three Fires (native Americans), Michilimackinac, the War of 1812, pioneer life, copper, cereal industry, tanks and the arsenal of democracy, Mackinac bridge, and Gerald R. Ford. These publications are provided by the state legislature free to all Michigan fourth grade students through their schools (public, private, charter and home). They assure easy access to the VAL market.

The second educational program comes from Mackinac State Historic Parks. They produce an educational packet with readings, drawings, lessons, pre- and post- visit activities, background materials

for the teachers, and even a glossary. The drawings are often full of objects unfamiliar to today's 4th graders. One example is a drawing of a woman cooking on p. 47: the axe, the long-handled iron pans, the hooks for holding kettles at various heights over the fire, the earthenware jars, even the broom and long dresses exist as artifacts that could be represented in three-dimensional form. The lessons in the educational packet are keyed to particular Michigan Curriculum Framework objectives for the history, geography, and economics strands that are tested by the MEAP. Information about these educational materials is available on the Web at http://www.mackinacparks.com/.

Elements of the Website

The VAL website will integrate four elements: a QuickTime-VR (QTVR) of the artifact, a video docent, text explaining the object, and links to other relevant materials. It will be available via links from partner sites, and from the Michigan Electronic Library.

The QTVR will simulate a three dimensional object. A student will be able to put the cursor on the artifact and rotate it from side-to-side, top-to-bottom, or front-to-back. Each object will have a minimum of six viewable facets. More complex artifacts will have 20 or more. An example of this is available at the website for MSU's IMLS-funded *Feeding America* project (http://digital.lib.msu.edu/cookbooks/). The size of artifacts will also vary considerably. Some might be quite small, a button for example. Others could be relatively large, such as a two-man saw. A ruler or other appropriate form of measurement beside the artifact as part of the image will help students understand its size. Each object will be identified with a name, description, manufacturer (if known), origin (if known), and the institution that provided it.

A video docent will explain each object. Where possible, the docent will be a member of the professional or volunteer staff of the institution providing the artifact. The video will serve the same purpose as a live docent in giving a history of the object, an explanation of its use, manufacturer, and perhaps the circumstances of its discovery or acquisition. In most cases the video will be only a talking head. Where possible and appropriate, the video might also demonstrate the use of the artifact. The intent is to keep these videos relatively small and non-invasive, so as not to distract students from interacting with the artifact itself. A small video will also minimize the bandwidth needed, which could be important for schools and students whose only internet access comes via telephone lines. Generally these videos will not run longer than three to five minutes. For very simple objects, they may be shorter.

The explanatory text will come from the institution that contributes the artifact, and may duplicate much of the information given by the docent. Some students will find the aural presentation more compelling. Others may be more comfortable having the written version to refer to later when studying or writing papers. The text will, however, include additional information, particularly references to other sources. This will include both material on the web and in printed form, available at school or public libraries or from institutions like the Library of Michigan or the state universities.

Some other relevant material will be digitized and made available on the website along with the artifact. The amount of information will vary with the type of material. A very simple object, like a button, might have an advertisement or brief reference in a practical book on clothes-making. A complex object like a Dutch oven might have recipes that use it, instructions for manufacture, or even descriptions in novels. The supplementary materials may be either text, images, or maps. Their purpose will be to illustrate the artifact's role in its time, and they will be selected with the reading skills of the 4th grade audience in mind. In general, these materials will be contemporary with the artifacts. Participating libraries will be asked to contribute most of these. References will also lead students back to the *Michigan History for Kids* magazine and to the Mackinac State Historic Parks and their educational materials.

The integration of these four elements will be important. The three-dimensional representation of the artifact should occupy center stage, with other elements in supporting roles.

Access

Access to these three dimensional representations and the accompanying material will be provided in three ways. Encoded Archival Description (EAD) records will be created for each object grouping, which will include the museum artifact, accompanying text, video clip of the docent's description, and digitized versions of one or more supplementary items. From the EAD records we will derive MARC records, which can then be harvested into the online catalogs of participating libraries and contributed to OCLC. Thanks to the InMich project, these records will also be available to a significant number of Michigan's public libraries, school libraries, and regional cooperatives.

The EAD records will also be used to produce Dublin Core records designed to work in conjunction with the Open Archives Initiative (OAI) Metadata Harvesting project. OAI Metadata Harvesting will allow a variety of forms of access to the materials.

Copyright

The vast majority of artifacts, texts, and photographs used in the VAL will predate 1923 and be in the public domain. When copyright-protected materials from after 1923 are desirable, permission will be sought from the rights holders. The copyright permissions unit of the Digital and Multimedia Center at MSU will handle these requests, and will keep copies of all permissions on file.

Technology and Standards

One of the core elements of the site will be images of museum objects that can be rotated in three dimensions or shown advancing through a range of motion. The process of creating these images begins with a series of photos taken from various perspectives (above eye level, at eye level, below eye level) and at regular intervals around the circumference of the object. For best results, photos should be taken against a solid-colored background that contrasts with the color of the object.

A relatively high resolution will be desirable to ensure that the image continues to be sharp and clear when the user zooms in to examine details more closely. Film cameras can do this, and most museums have them, if only to take photographs for documentation purposes. Some digital cameras will also capture images at the necessary resolution. The preservation images will be saved in TIFF format, and later converted to JPG after any necessary editing has been accomplished.

The "smoothness" of the motion of a rotating object, rendered digitally, works on the same principal as traditional motion pictures: the human brain perceives the series of still images, each slightly different, as actual motion. The number of photos required for a smoothly-rotating image depends largely on the shape of the object. Objects that are either cylindrical or have a shape that is symmetrical around a central axis (such as a rolling pin or mixing bowl) may need as few as four images from each perspective. Objects with complex, irregular shapes (such as a musket or spinning wheel) will generally need eight, twelve, or eighteen photos from each perspective to create an image that appears to rotate smoothly.

Smaller objects can be photographed on a tabletop covered with appropriate background material. One method of ensuring the photos are correctly centered and at appropriate intervals would be to mount the camera in a fixed position and place the object on a simple lazy susan, which could be rotated the desired number of degrees between shots. Photo editing software can be used to adjust the alignment of the individual images, and this technique will probably be needed for photos of larger objects where the photographer and camera, rather than the object, move to a new position for each shot.

After photo editing is complete, the images will be compiled into interactive Quick Time movies using software such as VR ObjectWorx. Users can control the positioning and rotation of the object simply by clicking and dragging the mouse in the direction of the desired movement. Then, using Synchronized Multimedia Integration Language (SMIL) the movable image of the museum object can be combined with the video clip of the curator's commentary to create an interactive exploration environment.

Timeline

The VAL will run for three years. The first year will serve as a pilot project with the digitization of 20 objects from each of the three theme areas (the fur trade, the iron industry, and the auto industry) for a total of 60 objects (20% of the total). This pilot will help to develop techniques for mass production, and will allow time for feedback from students and teachers, which is critical to understanding whether the VAL is meeting its educational goals. It will also help to refine techniques for imaging. Large open objects are likely to prove significantly more complex than small solid ones, both because of the number of surfaces and because of aspect-ratio issues. One of the critical first year tasks will be to recruit four to six teachers for this pilot test, and to structure: a) how teachers should expose students to the artifacts, b) what they are to observe, and c) what they are to ask students about their reactions to their experiences with the artifacts.

The second year will use the feedback and experience gained during the pilot to double the rate of digitization to produce 40 objects from each theme area for a grant total of 180 objects (85% of the total). Feedback from students and teachers will continue to be sought, particularly in regard to any changes. In the final year the production rate will slow again, to allow time to make any modifications deemed desirable by the classroom evaluators. The total number of digital objects will be 210.

The type and number of supplementary works will depend heavily on student and teacher feedback, and on usage patterns from Web-access statistics. Initially the object will average two supplementary text- or image-based works that use language accessible to 4th grade students. The number may increase over time, if they prove successful.

In the final year of the project particular effort will be made to institutionalize the VAL so that it can continue without IMLS support. Techniques will depend partly on the economic conditions of the time, but should include a mix of support from school districts, state agencies and universities, and Michigan-based foundations.

The project could be completed more quickly, but this timing will give museums a chance to examine, select, and photograph their objects carefully, and, more importantly, it will allow the VAL to assess the success and usability of the virtual artifacts for 4th grade students. Technology could also change over these years, and may make higher resolution images or more complex interactions feasible, even for home use for those using dial-up connections.

Contents

The iron industry artifacts range in size and complexity from a small haulage steam locomotive to simple miners' tools and iron ore pellets. The locomotive will be one of the last items added because of its complexity. It is the engine that introduced steam and mechanical—as opposed to draft animal and muscle—power to Michigan's iron range. An equally complex artifact will be the microscope used to discover enough iron in deep deposits to introduce the pelletization process of the last half of the 20th century. Other artifacts include mill parts from the first iron forge in Michigan, ore cars, picks, hammers and shovels.

Personal items in the iron mining collections range from miners' hats with candles to the uniform worn by the director of an Italian band in an iron range town. There are baby carriages and school books used by children on the iron ranges, and a bank vault door.

The automotive collection is equally varied, including early cars, a 1957 Corvette, and a wide variety of tools and parts. It also has dusters and goggles, picnic sets and camping sets, dealers' models and concept models.

Fur trade artifacts will include a variety of historical and archaeological specimens. Fort Michilimackinac (1714-1781) was the main center for both French and later British fur trade activities in the upper Great Lakes. The fort is the site of the longest on-going, historical archaeological excavation in North America. Over one million artifacts have been uncovered, providing a wealth of information about life on the fur

trade frontier. The types of artifacts selected for the project include a variety of household artifacts and trade goods such ceramics, glassware, gaming pieces, gun parts and military buttons. Historical artifacts will include the 1779 DePeyster punch bowl, a stunning piece of English silver presented by the French traders of the post to the departing British commander, selections from the Native American collection, trade goods and military items.

The "83 Counties" online exhibit created by the Michigan Historical Center provides a glimpse of the wide variety of artifacts collected in these and other topic areas.[1]

Metadata

The VAL project offers an opportunity to create metadata that describes collections of dissimilar digital objects (digital surrogates of the artifacts and supplementary readings and 'born digital' text descriptions and video clips). Encoded Archival Description (EAD) will be used to create records for each artifact grouping, and from the EAD records will be derived MARC records for use in library catalogs and Dublin Core records for use in OAI repositories. Published standards, such as those developed by the Colorado Digitization Project, will be used to standardize input. In addition, the work will be informed by research carried out in the museum community to determine how Dublin Core elements may be effectively used to describe museum objects. The "Guide to Best Practice: Dublin Core, Version 1.1"[2], released by the Consortium for the Computer Interchange of Museum Information (CIMI) in 2000, provides detailed recommendations for describing museum objects and their surrogates with unqualified Dublin Core ("DC Simple").

Although the metadata records will refer to the digital surrogates, they will also incorporate information about the original artifacts. Both the Michigan Historical Center and the Mackinac State Historic Parks use the same collections automation product, Questor's ARGUS system. The VAL project also offers an opportunity to investigate whether full or partial DC records can be efficiently extracted from a collections database, which might be of great benefit to the museums. An additional expectation will be that the Dublin Core records produced for the VAL comply with OAI metadata harvesting requirements. The records will be submitted to the appropriate repositories to ensure the broadest possible access to the materials.

Evaluation

Enriching the understanding of 4th grade school children is the key component of this project. Measurement of success in this is possible in several ways. The website itself will have options for providing feedback, either in terms of quick check-box surveys or in the form of written comments. We will ask the age of respondents, pending approval from the University Committee on Research in Human Subjects (UCRIHS). We will also conduct focus groups with cooperating teachers in order to get detailed feedback. Because focus groups are expensive in terms of teacher time, no more than two will be held each year. VAL will work closely with MHC and MSHP to find teachers willing to participate.

An active review of this part of the project evaluation will take place at the end of each year to determine what changes in design, accessibility, selection, and outreach need to be made to improve the site. While it is desirable for the site to serve the needs of a wide age and education range of users, choices for improvements will continue to favor the 4th grade target audience.

A second important measure of success is support for the continuation of the VAL beyond the end of the grant period. This project should help us validate the costs for all aspects of the project, so that we can say with confidence how much it costs to add each new artifact. This information should give potential

[1] See http://www.sos.state.mi.us/history/museum/explore/museums/hismus/special/memory/counties.html

[2] See http://www.cimi.org/public_docs/meta_bestprac_v1_1_210400.pdf

private donors, foundations, and other funding sources, including internal budget allocations, a clear sense of what they buy with their support. Although the VAL in its present form is a partnership of large institutions, it aims to include smaller museums and historical societies across the state.

Other evaluation measures for the project include the number of artifacts on the web site, and the number of overall visitors.

Interns

This project will provide an opportunity for students from the library school at Wayne State University to gain useful experience. One intern will be hired each summer and will learn about the multidimensional digitization process, assist with research into supplementary materials, help prepare the web interface for the site, and examine collection information with Museum staff to determine what elements can be mapped to Dublin Core records.

The project director and staff at the host institutions will participate in selecting the interns, based on interviews and on recommendations from faculty.

Preservation

To ensure the preservation of the VAL's digital products, copies of both the source materials and the completed virtual environments will be maintained in a long-term digital storage program. Source materials will include the image photos in their original .tif and edited (aligned and with backgrounds masked) .jpg formats; video clips of curators' comments in .mov format; accompanying text in XML format; and the SMIL (Synchronized Multimedia Integration Language) scripts that organize these materials into presentations.

MSU will serve as the central repository for long-term preservation of materials. It uses the Andrew File System (AFS) from Carnegie Mellon University as its repository system. The MSU AFS space consists of cabinets with mirrored 36 Gigabyte hard disks, with weekly and monthly tape backups that are stored off site. This storage is used for all of the audio materials from the Vincent Voice Library that are being digitized for the Digital Library Initiative-funded National Gallery of the Spoken Word project, as well as for materials digitized for its IMLS-funded Feeding America project.

Management

The VAL management team will consist of the project director, Michael Seadle, from MSU; the co-principal investigator, Ruth Ann Jones, from MSU; a representative from the Library of Michigan, Jo Budler; and a representative from the Michigan Historical Center, Sandra Clark. They will have responsibility for the distribution of project funds, and will make decisions about issues that arise in the course of the project. They will also seek means for sustaining the project beyond the grant-funded period.

A larger VAL advisory board will consist of representatives of each participating institutions and teachers from the Lansing School District. This board will assist the management team in evaluation and future development. They will meet once each year of the project.

The project director at MSU will have administrative responsibility for grant accounting, financial management, and reporting to IMLS including writing the final report. He will carry out these responsibilities in close consultation with the broader management team. He will also be expected to represent the project as needed on a state and national basis. The co-principal investigator will substitute for the project director as needed in meetings and as a representative of the project.

Staffing

The project director, Michael Seadle, has a PhD in history, over a decade of experience as a professional programmer, and has written and lectured on digital publication. He is principal investigator for "Feeding

America: The Historic American Cookbook Project" and co-principal investigator for the Digital Library Initiative Phase 2 project to create a National Gallery of the Spoken Word. He is Digital Services and Copyright Librarian at Michigan State University, and head of the MSU Libraries' Digital & Multimedia Center.

The co-principal investigator, Ruth Ann Jones, is Digital Projects Manager at the MSU Libraries. She is project manager for "Feeding America: The Historic American Cookbook Project."

Sandra Sageser Clark is Director of the Michigan Historical Center in Lansing, Michigan. The Center is a full-service state history agency that has 10 museums, including two that focus on Michigan's iron industry and the central state museum in Lansing. She has served on the steering committee for a series of ILMS- funded Michigan Museum Association projects on cultural tourism and is a past president of that organization and of the American Association for State and Local History. She is also on the board of the Association of Midwest Museums.

Steven Brisson is Curator of Collections for Mackinac State Historic Parks, overseeing all collections activities at three major historic sites and seven house museums on Mackinac Island and the nearby mainland. The sites serve 400,000 paid visitors annually. In addition, MSHP conducts the largest state-wide school outreach program in Michigan. Brisson is a graduate of the Cooperstown Graduate Program and has been involved with museum work for twelve years. He has ten year of experience as a curator managing diverse collections of historical and archaeological artifacts. He serves as a MAP reviewer and has been project administrator for two IMLS-CPS grants.

Jo Budler is Deputy State Librarian at the Library of Michigan. She also served as Director of Network Services at the Nebraska Library Commission.

Peter Berg has a PhD in history and serves as head of the MSU Libraries' Special Collections Division. He is co-principal investigator for "Feeding America: The Historic American Cookbook Project."

Lisa Robinson will serve as liaison to the education community for purposes of evaluating the usefulness of the site. She is currently Assistant Digital Services Librarian at Michigan State University.

Jeff Trzeciak is Interim Director for Library Computing and Media Services at the Wayne State University Library System.

Stephanie Bour will serve as production supervisor for scanning and creation of QTVR objects at MSU. She currently supervises scanning and data entry for the IMLS-funded "Feeding America" project.

Work Plan

First six months (October 2002 through March 2003): Startup

ACTIVITY	PERSON(S) RESPONSIBLE
Select interns	Seadle & LOM
Select 10 artifacts relating to each topic (30 total)	MHC, MSHP (etc)
Select 4-6 teachers to participate	MHC
Photograph artifacts	MHC, MSHP
Digitize photographs if necessary	MSU, WSU
Write descriptions of artifacts	MHC, MSHP
Create docent videos about each artifact	Peiffer, MHC, MSHP
Create QTVR	Jones, Trzeciak
Select supplementary materials	LoM, Berg, intern

Create web page for each object	Jones, Trzeciak, intern
Create DC & MARC metadata for each page	Jones, Trzeciak, intern
Recruit 4 to 6 teachers for first pilot test	MHC, MSHP, Robinson
Write first progress report	Seadle

Second six months (April 2003 through September 2003): Test prototype

ACTIVITY	**PERSON(S) RESPONSIBLE**
Teachers classroom test reactions to artifacts	Robinson
Modify project to reflect teacher testing results	Advisory board
Select 10 more artifacts relating to each topic (30 total)	MHC, MSHP
Photograph artifacts	MHC, MSHP
Digitize photographs if necessary	MSU, WSU
Write descriptions of artifacts	MHC, MSHP
Create docent videos about each artifact	Peiffer, MHC, MSHP
Create QTVR	Jones, Trzeciak
Select supplementary materials	LoM, Berg, intern
Create web page for each object	Jones, Trzeciak, intern
Create DC & MARC metadata for each page	Jones, Trzeciak, intern
Write second progress report	Seadle

Third six months (October 2003 through March 2004): Adjust to feedback, begin full production

ACTIVITY	**PERSON(S) RESPONSIBLE**
Select interns	Seadle & LOM
Select 20 artifacts relating to each topic (60 total)	MHC, MSHP
Photograph artifacts	MHC, MSHP
Digitize photographs if necessary	MSU, WSU
Write descriptions of artifacts	MHC, MSHP
Create docent videos about each artifact	Peiffer, MHC, MSHP
Create QTVR	Jones, Trzeciak
Select supplementary materials	LoM, Berg, intern
Create web page for each object	Jones, Trzeciak, intern
Create DC & MARC metadata for each page	Jones, Trzeciak, intern
Train teacher pilot group in using the artifacts with lesson plans	MHC, MSHP, educator
Write third progress report	Seadle

Fourth six months (April 2004 through September 2004): Complete about 120 Artifacts

ACTIVITY	**PERSON(S) RESPONSIBLE**
Pilot teachers test use of artifacts in lesson plans using multiple materials	Robinson
Evaluate and modify web presentation and teacher training	Jones, Robinson, MHC, MSHP
Select 20 artifacts relating to each topic (60 total)	MHC, MSHP
Photograph artifacts	MHC, MSHP
Digitize photographs if necessary	MSU, WSU
Write descriptions of artifacts	MHC, MSHP

Create docent videos about each artifact	Peiffer, MHC, MSHP
Create QTVR	Jones, Trzeciak
Select supplementary materials	LoM, Berg, intern
Create web page for each object	Jones, Trzeciak, intern
Create DC & MARC metadata for each page	Jones, Trzeciak, intern
Summer workshop for teachers in using the existing materials with their classes (one in Lansing and one in the Upper Peninsula)	Robinson, MHC, MSHP
Write fourth progress report	Seadle

Fifth six months (October 2004 through March 2005): Final adjustments to techniques

ACTIVITY	**PERSON(S) RESPONSIBLE**
Teachers use materials throughout the school year	Robinson
Select interns	Seadle & LOM
Select 10 artifacts relating to each topic (30 total)	MHC, MSHP
Photograph artifacts	MHC, MSHP
Digitize photographs if necessary	MSU, WSU
Write descriptions of artifacts	MHC, MSHP
Create docent videos about each artifact	Peiffer, MHC, MSHP
Create QTVR	Jones, Trzeciak
Select supplementary materials	LoM, Berg, intern
Create web page for each object	Jones, Trzeciak, intern
Create DC & MARC metadata for each page	Jones, Trzeciak, intern
Write third progress report	Seadle

Last six months (April 2005 through September 2005): Evaluation and training

ACTIVITY	**PERSON(S) RESPONSIBLE**
Focus groups with teachers for final evaluation of the project materials and training needed	Robinson, MHC, MSHP
Final formatting and documentation of the site, the processes and the training of museum staff and teachers	Jones, Robinson, MHC, MSHP
Teacher workshops and presentations on using the existing materials	Robinson, MHC, MSHP
Museum staff training on using the digital methods and on the kinds of artifacts that work in the classroom	MHC, MSHP
Complete business plan for the long-term expansion and maintenance of the project	Seadle, Jones, Clark, Brisson
Write final progress report	Seadle

Relationship to Making of Modern Michigan

The Digitization Committee of "ATLAS," the Action Team for Library Advancement Statewide, is sponsoring both the Virtual Artifact Laboratory project and the Making of Modern Michigan. While these are separate projects with different goals, there are important potential synergies between them.

The Making of Modern Michigan, if funded, will establish infrastructure statewide for small and medium sized libraries to digitize their own materials, some of which could be relevant to the much more focused

themes in the VAL project. Since VAL is intended as a demonstration of the kind of Museum-Library collaboration that is possible in Michigan, participants in the Making of Modern Michigan might develop similar local partnerships.

The Long Term

This project represents a narrowly focused effort to show how libraries and museums can cooperate in ways that directly benefit school children and support Michigan's educational assessment program. In the long term this kind of cooperation should extend beyond major state institutions to embrace a wide range of small museums and historical societies. It should also extend to other parts of the K-12 curriculum and to the interests of free-will learners of all ages in Michigan and beyond.

This planning is being done in close cooperation with the Library of Michigan and the Michigan Library Consortium, and as part of the larger ATLAS initiative. Funding for future developments will be sought from a variety of sources, including the state itself.

Partners

The partners for this project include:

- Michigan Historical Center, which runs the Michigan Historical Museum and its ten field sites and museums and is the primary historical agency for the State of Michigan.
- Mackinac Island State Park Commission, which administers Mackinac State Historic Parks, includuing Mackinac Island State Park, Fort Mackinac, Colonial Michilimackinac and Historic Mill Creek.
- Michigan State University Libraries, a 4.5 million volume collection that is part of the land grant university.
- Wayne State University Library, an Association of Research Libraries collection at the urban center of South East Michigan.
- Library of Michigan, the state library.